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THE DENTAL DIGEST

Vol. XXXIII

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Porcelain Manipulation

A PRACTICAL TECHNIC FOR THE GENERAL PRACTITIONER

By F. R. Felcher, D.D.S., Chicago, Ill.

I

GENERAL CONSIDERATIONS

This treatise is written for the purpose of placing before the porcelain-worker in general practice a simple and clear treatment of the manipulation of porcelain, in order that it may be used in the every-day practice of dentistry. As skill can come only from practice, the author will endeavor from time to time to describe experiments which the porcelain operator may use in his spare time to enable him to improve his technic.

It will be necessary, of course, that considerable time be spent in carving teeth, so that a better knowledge of tooth form may be understood, as that is an important part of dental restorations. A knowledge of tooth form is an aid to better dentistry in almost all of its branches. As it takes time to master the proper manipulation of porcelain, it will be necessary to practice until it can be handled with ease. The same is true of the furnace technic, especially the methods which will be described in this series of articles.

Aside from the beautiful results obtained, the use of porcelains in dentistry produces better fees and a higher appreciation by the patient. We have all seen the fine results of porcelain restorations and have admired the skill of the operator able to produce such art, little thinking, possibly, that similar results can be obtained by the average person versed in a knowledge of tooth form and with an understanding of the fundamentals underlying the principles of porcelain manipulation.

As the purpose of this series is to deal only with the practical side, descriptions of obsolete or of fancy methods will be eliminated. Only that which is constructive will be considered and described.

Vast strides have been made in the manufacture of furnaces, instruments and materials that are used in the construction of porcelain restorations. A word of credit should be given to the pioneers who have diligently worked in this interesting branch of dentistry. Although

they were obliged to make and mix their own porcelain bodies, fusing them without the use of pyrometers and operating under great difficulties, some of their results are still giving good service to their patients.

It will be necessary, however, to discard many of the ideas and practices under which these pioneers produced their work. Advancements have been made that have altered to a large degree the theories that were accepted years ago, even to the extent of disproving them. Nevertheless we cannot avoid a thought of appreciation for those men who are responsible for the opportunities which we have at present before us.

It is no longer necessary to make use of two or three different fusing bodies in the construction of a porcelain restoration. Instead of the high-, medium- and low-fusing bodies, one kind of body is used, high, medium or low, in the construction of the work. Instead of guessing at the fusing point, highly calibrated pyrometers and thermocouples check the actual heat produced in the muffle chamber.

There are available high-fusing porcelains, with a fusing point at or near 2500°, which are considerably stronger than the old high-fusing porcelain which fused at or near 2300°. Instead of making matrices for jacket crowns and inlays directly in the mouth, dies and models are now used. These dies are made from impressions of the tooth and surrounding teeth, enabling, by the use of swages and the more intelligent use of the matrix, the production of porcelain restorations requiring considerably fewer baking operations. The method described herein is termed the *indirect method*.

The control of shrinkage is easier today because of a better understanding of the condensation of porcelain and the better use of the platinum matrix, which can be so constructed that it will not allow the porcelain in fusing to draw away from the margins and shoulders of jacket crowns.

II

INSTRUMENTS

In addition to a good furnace and a pyrometer, the porcelain operator should furnish himself with certain instruments and supplies. It will be noted that a minimum of instruments is here recommended. With the following (Fig. 1) every kind of artistic porcelain restoration may be produced:

High-fusing porcelains.

Medium-fusing porcelains.

Low-fusing porcelains.

Porcelain carver.

Matrix pliers.

"K" tweezers.

Glass slab.
Water-bottle with dropper.
A few plaster pencils.
Time clock.

Root-former.
3 small brushes.
Palette knife.
Small straight manicure scissors.

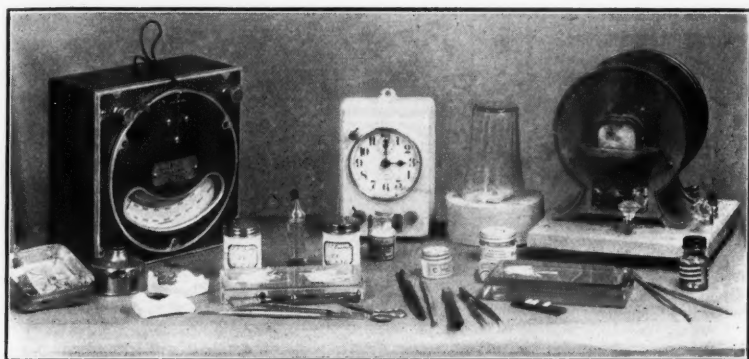


Fig. 1

Porcelain instruments and materials ready for the operator

Different manufacturers produce high- and medium-fusing porcelains. The fusing points are usually considered to be between 2500° and 2560° F. for the high-fusing and 2300° F. for the medium-fusing.

High-fusing porcelain is used mainly in the construction of porcelain jacket crowns and inlays.

Medium-fusing porcelain is used on artificial teeth where it is necessary to change contour or color, or for the construction of some inlays.

Low-fusing porcelain is used for slight changes on jacket crowns or inlays after the matrix has been removed. It may be used also in making inlays in some cavities, such as cervicals. The disadvantage is in the greater shrinkage, necessitating a greater number of bakes.

The porcelain carver used by the author is one of his own design (Fig. 2). It is made to fill a number of needs required in ceramic work. The blade portion is designed to be used as a packer. This will enable the operator to pack the porcelain on the matrix without danger

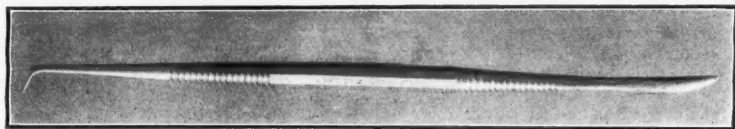


Fig. 2

Porcelain Carver

of accidentally cutting away the built-up porcelain. The curved (concave) surface of the blade is dulled up to within a short distance of the tip to be used as a burnisher for the platinum matrix. The convex portion of the blade is sharp, as is the tip, and is to be used in place of a lance for fine carving or for cutting away excess porcelain. The reverse end of the carver is used to burnish the platinum at the shoulder. The handle is designed with coarse and fine knurls for condensation by vibration.

The matrix pliers (Fig. 3) are designed particularly for folding the platinum at the joint, and the angle of the pliers is such as to facilitate easier handling of the matrix. The serrations are for interlocking the platinum.

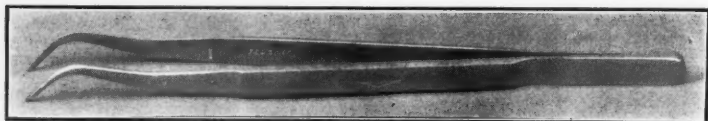


Fig. 3
Matrix Pliers

The "K" tweezers are used to hold inlays and crowns.

The root-former (Fig. 4) is designed to hold long-pin facings while roots or saddles are being built upon them. The angle is such as to enable the application of casting wax and its removal, and it can be used also for building porcelain tips to facings or as a holder for a facing while the porcelain is being contoured.

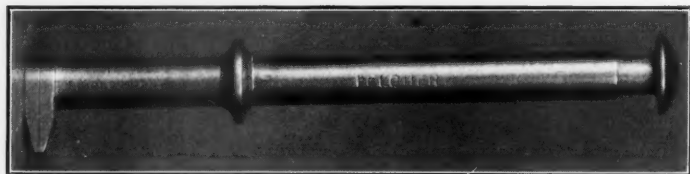


Fig. 4
Root-former

Three small brushes are all that need to be obtained, as follows:
One No. 12 small, round camel's-hair brush, for smoothing the porcelain after it is built up.

One No. 2 small, flat bristle brush, about $\frac{3}{8}$ inch wide, for removing excess porcelain at the shoulder.

One small camel's-hair brush, for applying glaze or stains to teeth.

The following also are needed:

One two-inch palette knife, which may be purchased at any art store.

One pair of straight manicure or embroidery scissors, with blades about $1\frac{1}{2}$ inches long.

One glass slab for mixing porcelains.

One water-bottle with dropper.

A good time clock should be used when the porcelain is to be baked by the time fusing method.

A few plaster pencils are necessary for the removal of excess water from porcelain mixes. These can be made by pouring plaster on a slab and cutting into strips as soon as the plaster commences to set. They are preferable to blotting paper.

It would not be amiss to mention the fact that a few covers might be obtained, anything that can be placed over the porcelain on the slab while it is not in use. These will keep dirt out of the porcelain and prevent too much drying out of the water in the porcelain.

25 East Washington Street.

(To be continued)



Developments In Indirect Inlay Technic

By Louis I. Abelson, D.D.S., New York, N. Y.

(Continued from April)

COMPOUND CAVITIES

For simplicity in description I shall take up the mesio-occlusal cavity of a lower molar, the other forms of this class being modifications that can readily be developed.

Now again we come to the comparative advantage of the indirect method for the conservation of tooth substance. We can readily see in the cross-section of the prepared approximal surface in Fig. 3 how much less of the tooth structure is removed in the slice preparation by the indirect technic.

Recently there has been a tendency on the part of some direct-method operators to utilize the slice preparation for certain types of

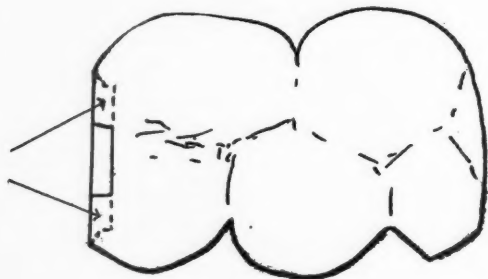


Fig. 3

Cross-section of approximal preparation. Heavy lines indicate the indirect method preparation. Dotted lines indicate the direct method preparation. The area between represents the tissue saved by the slice preparation.

compound and complex cavities in overcoming the physical changes produced in casting by investment, wax, molten metal, etc. This is an admission of failure in technic, for we all know and have always been aware of the impossibility of producing the absolute in dental castings. Our salvation at all times has been to rely on bevels and the like to bring a restoration into the sphere of usefulness.

The slice preparation for direct-method patterns is a rather delicate and dangerous procedure. The extreme care necessary in the handling of such thin margins of wax in the mouth is incontrovertible from a standpoint of deflection either by direct manipulation or by the warpage of this marginal surface as it lowers from mouth temperature to

room temperature, even though we hurry the interval between pattern-making and investing.

It is a well-known fact that our casting processes to date have been failures from the standpoint of scientific accuracy. Our results are never as our cavities or patterns directed, but only a product close enough to the mark to make them comparatively useful. We can only hope for perfection by utilizing certain features that tend to compensate in a measure for the enormous discrepancy resulting. Let us analyze the comparative values of the bevel and slice preparations in compound and complex cavities, assuming the proved fact that the

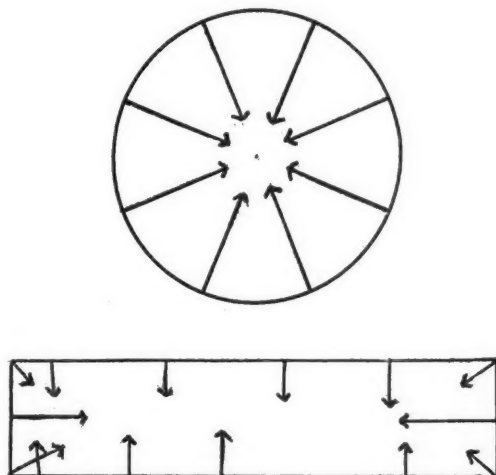


Fig. 4

This demonstrates the concentric shrinkage of metals in spheres and oblongs.

shrinkage of the casting will break the contact of the cervical surface of the inlay from its corresponding tooth preparation.

In passing from a state of molecular freedom (a liquid) to one of molecular fixation (a solid) metals undergo a change in bulk and form. This change probably would be uniform were it possible to eliminate the many ways in which the human element is involved, but unfortunately our endeavors are limited by our handicaps. The change in bulk is a natural sequel to all substances that undergo a rise or decline in temperature and varies with the increase or decrease of the quantity of metal used in the casting at hand. This so-called shrinkage is concentric and is the cause of decrease in the length and thickness of castings. (Fig. 4.)

In a spherical mass of poured metal we have but one concentric goal and therefore the resulting solidified object represents a facsimile, but with a comparatively similar diminution in size. Molten metals peculiarly seem to follow the rules of the spheroiding of liquids on a non-absorbing surface.

In casting straight bars we are confronted with a different problem. A bar cannot be poured to a replica of an original model without the danger of the spheroiding of the metals so cast and the production of a compensating balance of the forces in play, with a result nowhere nearly approximating the original pattern. However, in dental casting or in any process involving a system of pressure or force, whether it be

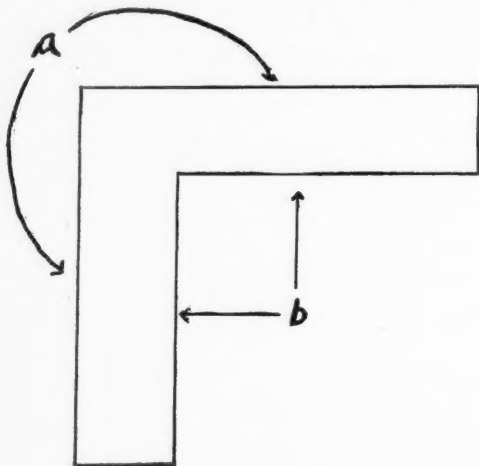


Fig. 5

Shrinkage at the angle of an M.O. pattern.

the atmospheric pressure of suction machines, the compressed gaseous effect of pressure devices or centrifugal force, we at once produce by this induced counteractivity myriads of centers of solidification, resulting in a casting as nearly resembling our original pattern as is possible by human hands. Even this result, although an apparently perfect reproduction, is far from satisfactory for dental castings. This degree of perfection in the arts would be considered supreme and would require very little attention to be utilized for their purpose, but, so far as we are concerned, microscopic values must engage our attention.

In the case of right angles, staples and complex castings we are further confronted by additional complexities of shrinkage. To illustrate, let us consider an M.O. pattern. (Fig. 5.)

We all know that an angular form when cast will have a tendency toward bringing the ends together, making the angle more acute and preventing the seating of the casting into the prepared cavity, unless that cavity or casting yields to a compensating degree. This phenomenon may be explained by the comparative difference in the rate of cooling of the external or larger linear length and the inside or shorter.

Metal forced into an angular mould will be chilled more rapidly on the external surface because of its larger area, while the inner or smaller surface, which to a greater extent is closer to the point of molecular freedom (liquid state), is more liable to greater compression by the contracting outer layer. Another explanation is that the angular wedge of the mould material insulates these surfaces from the greater bulk of the mould and its temperature reduces more slowly.

This uneven chilling or, rather, lowering of temperature causes the sides (*a* in Fig. 5) to advance to their respective centers of solidification, which in this case approach the cavo-surfaces (*b* in Fig. 5), producing a springing together of the ends by virtue of the diminished resistance of the molecules of metals on the cavo-surface.

Conversely, if we could produce a condition where surfaces (*a* in Fig. 5) were in this state of diminished control, we should obtain a casting sprung apart, or if all surfaces could by some means at present beyond human approach be kept at uniform temperature until the casting had reached room temperature, we should be rewarded with an undistorted product. However, this ideal is one beyond our ability and must be relegated to the archives of unsolved perplexities.

To come back to the M.O. preparation, it can readily be seen that at best the inlay has sprung together, shortened in length, and given a result unfavorable for dental use. What, then, is the remedy whereby we may cover or obliterate these defects? This can be accomplished by the addition of surfaces to the inlay, which even in shrinkage retreat in a manner beneficial to the obliteration of the discrepancies present. These surfaces are most useful if prepared at right angles to the ones resulting in the faults.

In Fig. 6 we can readily see that even though the cervical floor has risen from contact, due to the shrinkage, and the flat slice-prepared surface (*a*) has shrunk from its original extent and periphery, still this added flat-slice surface (*a*) will maintain contact by its face with the slice preparation, which is the only possible right-angled surface to the interior box form, and thereby cover the shrinkage of the cervical floor.

In the event of a bevel preparation, complete contact is not possible by the inlay with the exception of its periphery.

It does not seem that metal will shrink evenly or uniformly for different lengths and therefore the surface (*a* in Fig. 6) would present

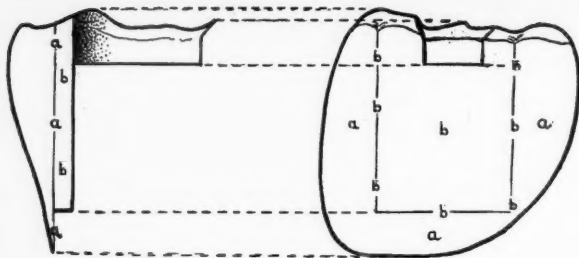


Fig. 6

The covering of discrepancies, due to shrinkage, by the addition of surfaces contracting in a manner favorable to the obliteration of faults.

a curved or parabolic condition and at best, if this should be concave, would result in a contact at the margin only, with a discrepancy progressing and increasing until its maximum was where the cervical surface had receded from the preparation.

We may again say that from a perpendicular corrective surface, as used in the slice preparation, to one of no angulation (a progression of various bevels from long, very acute ones to broader and broader ones ending in none but a cervical step) we have theoretically a series of conditions from a full correction of discrepancies through a succession of less effective protection ending in no bevel, where we have a maximum discrepancy. (Fig. 7—*bc*, *bd*, *be*, *bf*, *bg*.)

It will be noted in this elaboration that the occlusal portion has not been considered. This is treated similarly for the direct or indirect

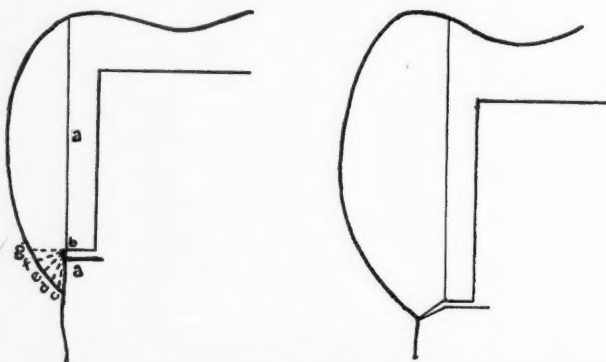


Fig. 7

The progressive degrees of preparation at the cervical, from the slice through the bevels of different angulation, ending in no bevel.

method. We must produce a bevel around the entire occlusal margin of the cavity to cover the discrepancy of the occlusal boxlike retention, which in shrinking to a smaller mass, permits the inlay to be set deeper, the bevel portion then coming into play as a sealing agent.

In general, regarding bevels and slices, we may say that all margins parallel to the direction of insertion of the restoration should be protected and safeguarded with a slice preparation, while other margins are taken care of by bevels. In other words, axial line angles in posterior teeth and the cervical and labial margins of anterior teeth should be of a slice nature, while others may be beveled.

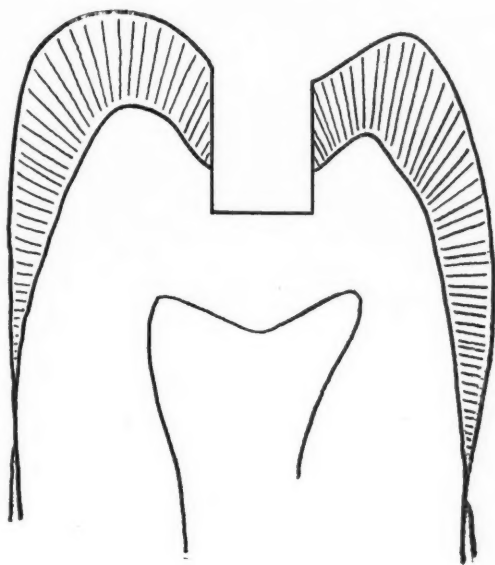


Fig. 8

Preparation with no bevels for pit and fissure cavities.

In gold foil operations, bevels are not essential in cavities involving fissures only, because the concentric and radiating arrangement of the enamel is such that no enamel rods are left unsupported when the cavity is prepared and no allowance is necessary for the shrinkage of metal, each pellet being wedged against the tooth rather than drawn away from it as in castings. (Fig. 8.)

PREPARATION OF COMPOUND CAVITY

One of the cardinal principles of all cavity preparation is the removal of all unsupported enamel rods, whether it be a simple margin

that requires a bevel or an entire wall. Enamel, unfortunately, is not self-sustaining and displays a marked tendency to fracture and cleavage in vital as well as in non-vital teeth. To rely on a wall of enamel with no underlying sound dentin is to invite failure. Such enamel will not go through the process of the insertion of any filling without suffering serious injury. In the case of silicate fillings in anterior teeth we might retain areas of unsupported enamel, but these must be in areas of no stress either from occlusion or from instrumentation in insertion.

Many otherwise good fillings fail because of improperly finished enamel margins and weakened walls that give way during the process of insertion and finishing, or later under the stress of mastication.



Fig. 9

Thin wheel point used in cutting out fissures.

With the unsupported walls of enamel dressed down, follow along the length of the fissures with knife-edged and thin wheel carborundum mounted points, run under moisture. (Fig. 9.)

Now make sure that there is enough space for a safe-sided carborundum disc to pass through the interproximal space about to be prepared so that the adjacent tooth will not be injured. If such a clearance does

not exist to begin with, it means that the adjacent tooth has migrated into or toward the cavity and reduced the base of the triangular interproximal space to such an extent that the bulge of the normal tooth overhangs the cervical margin or border of the affected neighbor. If this be the case, it is advisable to produce a slight wedging apart of these teeth in order to place them more nearly where they belong and make possible the preparation of the approximal surface without encroaching on the safety of the normal tooth. This separation may best be effected by the insertion of baseplate gutta-percha approxinally, with no excess pressure on the gingival tissues.

With a safe-sided carborundum disc (Fig. 10), make a slice cut



Fig. 10

Slice cut with a safe-sided carborundum disc.

involving in this prepared surface the tooth tissue extending into the buccal and lingual embrasures and the area where the cervical seat is to be prepared. With one operation this will give protective surfaces for the buccal, lingual and cervical borders of the approximal box preparation. This cut may be sandpapered after the preparation of the tooth has been completed and the occlusal bevels have been produced. (Fig. 11-A.)

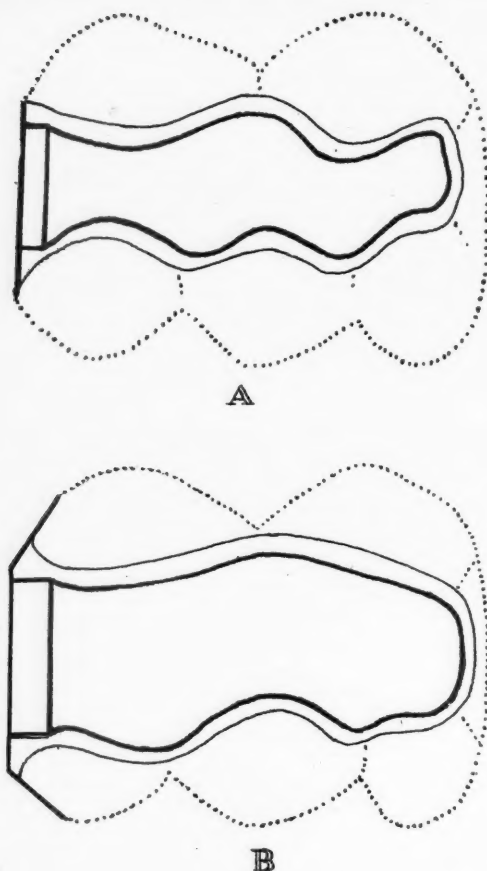


Fig. 11

- A*—Slice preparation for normal, vital teeth.
B—Flare slice preparation for weak walls, as found in devitalized teeth.

In the event of teeth that have undergone pulp-canal treatment and present weak walls, it is advisable to flare the buccal and lingual parts of the slice preparation toward the tooth itself, producing a sort of clasp or binding preparation that will tend to hold the tooth together and prevent fracture. (Fig. 11-B.)

With tapering fissure stones, block out the approximal box and occlusal preparation (Fig. 12). If decay remains after the bulk of the cutting, excavate to sound tooth structure and build up with a

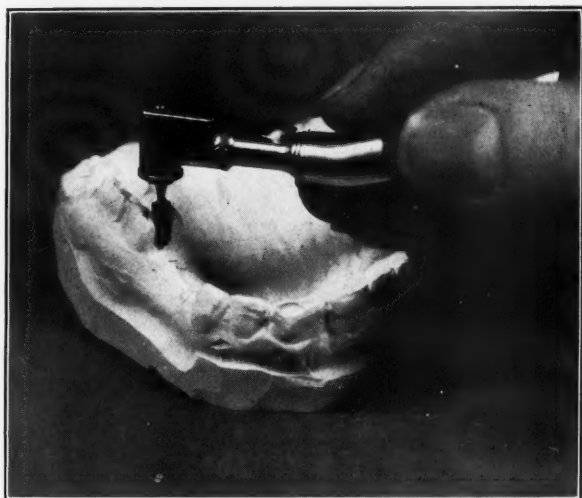


Fig. 12

Blocking out and cutting the approximal box preparation with tapered stone.

germicidal cement, after which proceed with the finishing touches of the definition of corners and angles with tapered fissure burs and the bevelling of the occlusal preparation with pear-shaped or tapering mounted points.

PREPARATION OF COMPLEX AND M.O.D. CAVITIES

The M.O.D. cavity presents no special problem, in that it really is an M.O. and D.O. combined. The instruments used are the same in each case, but we try to avoid too large or too deep a step preparation unless caries or the necessity of removable bridge attachments compels it.

In this type of cavity sufficient anchorage is assured by the two slice cuts and the occlusal connection, but in long approximal surfaces we may reinforce the casting and incidentally facilitate the accuracy of pattern-making by making a cylindrical notch, with or without a cervical floor, or a narrow box preparation.

The preparation of complex cavities cannot be described in routine order, because no two cavities are really alike, some being perplexing

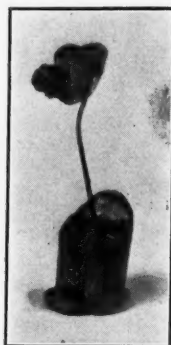


Fig. 13

Double cervical step for molars with approximal recession.

to such an extent as to tax our diagnosis as to the advisability of preparing for a porcelain jacket crown restoration, or, in devitalized teeth, cutting down for a cast core porcelain jacket or a cast base crown. In general, we follow the regulation form for approximal surfaces. Keep all walls smooth and line angles sharp, frail margins well beveled and weak walls or cusps reduced for shoeing. Experience alone will dictate cavity form and outline, but we must remember that in some of the irregular preparations we may utilize, as in upper molars with recession, even a double approximal step from the wider bucco-cervical area to the narrower linguo-cervical region. (Fig. 13.)

For M.O. or D.O. cavities, unless complexities in the extent of the slice or the adjacent positioning of the teeth present, we may best obtain an impression by the use of a wing tray or matrix. This is prepared from a piece of German silver metal, 30- to 36-gauge as space permits, cut to the shape of *A* in Fig. 14 and bent to that of *B*, Fig. 14.

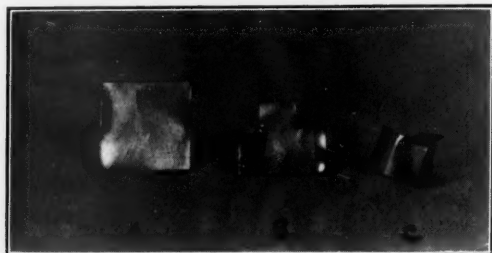


Fig. 14

Shaping the wing tray.

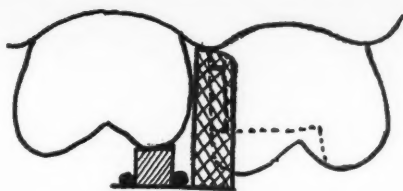


Fig. 15

Use of match-stick to raise tray.

The extending tail-piece (Fig. 14-C) rests on the occlusal surface of the adjacent tooth to prevent forcing the tray into the delicate approximal periodontal tissues. The height of this wing tray is governed by the length of the tooth, so that the tail-piece will rest on the controlling neighboring tooth and the free lower margin will go just below the cervical margin of the preparation and confine the compound against that margin under pressure. Should the occlusal arrangement of the teeth be such that the adjacent tooth is below the line of occlusion of the tooth being prepared, tack a piece of a match-stick to the under surface of the tail-piece to raise the level of the shorter tooth. (Fig. 15.)

The extending wings of the tray should be about $1\frac{1}{2}$ millimeters beyond the buccal and lingual portions of the periphery of the slice-cut preparation, in order to confine the compound under pressure to these margins.

The occlusal portion needs no tray, the cone of modeling compound acting as the means of confining and compressing it.

The cavity need not be lubricated, the saliva serving sufficiently to prevent adhesion of the warm compound.

Should the prepared cavity be next to a missing member, utilize a modified band for impression-taking. An annealed 30- to 36-gauge

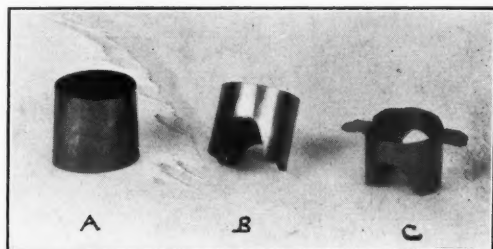


Fig. 16

Modified band tray.

copper band is fitted to the tooth, allowing sufficient play around the preparation to prevent thin, filmy layers of compound from registering the vital points of the preparation. Now cut away that portion of the band extending below the bulge of the tooth buccally and lingually, but not closer than $1\frac{1}{2}$ millimeters to the cavity margins (Fig. 16, A and B). The occlusal portion of the band intended for the approximal space formed by the tooth on the other side is now trimmed to form a controlling tail-piece that will rest on the occlusal surface of that neighboring tooth. (Fig. 16-C.)

This form of impression band is virtually a double wing tray joined occlusally by a double strip of metal functioning similarly in its self-limiting excursion gingivally.

310 West 72nd Street.

(To be continued)



Technic vs. Principles

By Francis Scott Weir, D.M.D., New York, N. Y.

"Truth and roses both have thorns," reads an old Spanish proverb. In like manner—judging from numerous inquiries regarding a special technic for adjusting each new articulator—the writer concludes that years of intensive instruction on this subject have left many thorns. It is startling to consider the apparent percentage of dentists who are uninformed as to the technic of articulator adjustment. This lack of understanding is so widespread that an attempt is here made to clarify the subject and to dispel the notion that each new instrument requires a *special* technic.

The profession of dentistry is founded on the principles of medical practice and the laws of mechanics. Around these factors the profession develops methods of treatment, instruments, and technics of application. Adherence to fundamental principles is always required, but the technic of application is subject to wide variation. This question of technic has been a point of contention that has created bitter enemies and caused much confusion in the profession. Principles have many times been lost sight of and progress has been made in spite of, not because of, such confusion. This fact is true of nearly every phase of dentistry—orthodontia, inlay procedures, impression technics, articulator problems. At the present time men are beginning to realize that it is the *application* of a principle in the technical variation of manipulating materials that is essential, and that the personal equation may produce a variety of *special* technics. The full realization of this thought will dispel much of the perplexity as to which technic is the best.

An illustration of a fundamental and a technic may be found in the transmission by wireless. The fundamentals are the dash and the dot; the technic consists in striking the key to produce the flash. The message may be sent in any language by using the alphabet in exactly the same manner, the only variation being in the combination of letters. No new technic is required. The operator may not know what the message means, but he knows his A-B-C's.

For another example let us take the man who owns a one-tube radio set with head-phones and changes it for an eight-tube superheterodyne with a power-unit speaker. He does not need to learn a new technic. He learns the variation of the dial settings between the old and the new sets. His fundamentals of radio have not been forgotten; he learns no new ones.

A good illustration is the individual who has owned a four-cylinder car that gallops when the motor is idled down to low speed. Due to increased prosperity he decides to buy a Cadillac or a Lincoln. He

does not have to forget all he knew about driving and learn a new technic. Why not? All cars steer from left to right or from right to left, according to the way the wheel is turned. The gear shift may be the reverse of that in the four-cylinder car, the lever longer and closer to him, with a greater range of movement. The emergency may be outside or on the reverse side, and the instrument board may have several new "gadgets," but it is not necessary to forget everything he knew about driving his first car. He tries the gear shift and in a few minutes he finds the new positions and in a few more minutes drives the car. How? Because he knew the principles and had only to find the slight variations in its manipulation.

Now, why will a man, a college graduate of four or five years' professional training which is based primarily on occlusion, since occlusion influences practically every branch of dentistry, with only trifling exceptions, whenever a new articulator is placed before him, work it from side to side, forward and backward, and apparently have no more idea of how that articulator can be adjusted to mandibular movements than he has about parsing a Greek verb? Yet this man has had a college course in professional training.

This is true in other phases of dentistry also. Give a man a new set of scalers or cutting chisels, instruments that by their very form suggest their use, and in the majority of cases it is necessary for him to take a course of instruction in technic before he can use them! These are truths that may have thorns, but they can certainly be demonstrated.

The question is: why is this all true? In the writer's opinion the reason is threefold: (1) from lack of thought, (2) from lack of knowledge, (3) from the fact that manufacturers have supplied technics for them.

Let an analysis of the first reason—lack of thought—be made and it will demonstrate how readily adjustments can be made on an articulator. The basis of dentistry is occlusion and is associated with mandibular movements. Apparently the mandible, as seen, moves from side to side, forward and backward. The geometry of these movements need not concern any one unless he is interested in the search for greater knowledge of such movements. The geometry has been studied by the men who have placed their instruments before the profession. The use of the instrument is the prime consideration. It may have a spherical or a triangular movement, or any other theory of movement, associated with its gyrations, yet to us it moves from side to side and forward and backward. The instrument may be adjustable or it may not be adjustable. If it can be adjusted, then what is the procedure?

Articulators can be adjusted to individual movements of the patient in two ways only: (1) by the check bite, and (2) by the graphic tracing.

It is possible to put variations in these two methods, but the principle remains the same. The check bite may be made in wax, compound or some other plastic material. The graphic tracing method utilizes the Gothic arch and the downward and forward condyle registrations of Gysi. The condyle registration may be made by lead tracing on cards, and the Gothic arch may be traced by a pin in black wax on a horseshoe plate or by pins in one bite rim tracing on the opposing rim.

Students in nearly every dental college are taught one of these two methods. The dental journals have published numerous articles on them. Nearly every dental society has listened to many papers on the same subject, and postgraduate classes for years in every section of the country have been taught one of these methods. Is it not strange that, since only two methods of adjustment of records exist, both of which have been taught, lectured upon by leading men throughout the nation, and published in many issues of the journals each year, such a large percentage of the profession show such a lack of information on the subject of articulator adjustment?

Again, as to lack of thought—a man often knows, but he does not apply his knowledge. One illustration will demonstrate this statement. A dentist knowing the check-bite method picks up a new articulator with a little variation in form. Condyle adjustments are possible, he sees, also rotation areas, incisal inclination and lateral "shift" or the Bennett movement. He takes right and left lateral and protrusive check bites as he has been taught. The mounted cases must rest in the check bite on the articulator in the same manner as they did in the mouth. The adjustments are loosened and one check bite is placed in position and the adjustments set to contact and locked when the occlusion rims are accurately seated in the check bite. The same procedure is followed for the opposite side and the instrument is set. The incisal inclination controls the amount of overbite and overjet desired in the case. This is determined by what is considered a pleasing expression and conforms to the mechanics of each case.

In the graphic-tracing method, the adjustments are loosened and set so that the instrument will follow the tracings made by the patient.

If an operator knows one or the other of these methods, a few minutes' observation will indicate how to set an articulator.

The second reason for failure is lack of knowledge. The operator who admits that he does not know is not being criticized, but he is advised to study or take a postgraduate course in order to learn the principles of occlusion, including mandibular movements, and then he will understand the adjustment of any articulator.

Those of third and last class depend upon the manufacturer to supply the necessary technic. In the early history of articulator development very little was known on the subject. In the effort to stimu-

late interest and better denture service certain manufacturers secured the services of professional men and gave them the opportunity of conducting research work and spreading the information by lectures, writing and technical practical courses. Through this medium an increased interest was taken and much good accomplished. However, the knowledge of this subject is now in the hands of many men who have carried it to a higher development, and it is no longer the province of the manufacturer to spread professional knowledge. The profession should be able to develop its own technic. The profession should develop and the manufacturer should market the product or instrument developed and desired. However, it seems difficult for a man to break away from the old established order of things; it seems difficult for him to study and analyze a new instrument carefully and then apply the knowledge about articulation that he has.

It is not necessary to have a special technic for every instrument. A slight variation of a technic may be necessary, but fundamentally all really adjustable articulators may be adjusted by either the check-bite method or the graphic-tracing method, or by a combination of the two.

Fundamentals stand the test of time, and such shining examples as G. V. Black, the man who first covered the operative field thoroughly, and Alfred Gysi, in the field of articulation, have left little but technical variations for their successors. It should be the aim of every professional man to master the fundamentals of the two major branches of dentistry, operative and prosthetic. Then instruments capable of correct manipulation will be shorn of mystery, and manufacturers will no longer be expected to provide technics—the profession will take care of that!

46 West 51st Street.



Immediate Denture Service*

By Erwin Hanke, D.D.S., New York, N. Y.

The demand of patients of today to have their daily routine interfered with as little as possible necessitates the replacing of extracted teeth with substitutes immediately after the operation. The substitutes supplied by the dentist not only should fill the voids made by the extraction, but should be of such character as to deceive the friends and acquaintances of the patient.

The method to be outlined will give the steps in the furnishing of a vulcanite denture or, in a few limited cases, a permanent metal denture bearing teeth which are replicas of the individual's teeth as to size, shape, positioning, color and characteristic markings. These dentures are made up before the teeth are extracted and are placed in the mouth



Fig. 1

Original cast, with the teeth to be extracted marked for identification.

immediately after. In this way they act as a bandage, controlling hemorrhage, stimulating the healing process, and preventing foreign matter from being forced into the sockets. This method, with modifications, may be used in full and extensive partial restorations.

After a decision is reached as to the teeth to be extracted, an impression is taken of that jaw, as well as an impression of the occlusal surfaces of the teeth of the antagonizing jaw, and a wax bite. Stone models are poured (Fig. 1) and mounted on a straight-line articulator, except for full denture work, when an adjustable articulator should be used. In the latter case a face-bow registration may be made when the wax bite is taken, and the articulator set at the next sitting with the aid of lateral and protrusive bites.

* From a clinic before the First District Dental Society, New York, December 8, 1926.



Fig. 2

Wax impression of facial aspect.

A bite registration is now made in wax by having the patient bite into a roll of soft wax, the operator pressing the wax against the necks of the teeth to obtain a clear impression of the facial aspect of the teeth. This bite, or impression, is poured in plaster in one piece, and the wax is boiled off.

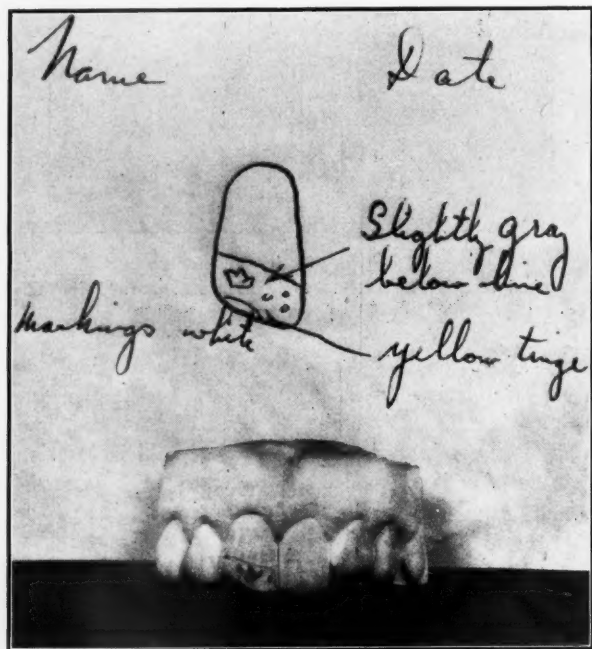


Fig. 3

Plaster cast from wax impression (Fig. 2), showing characteristic markings and shadings as well as position and shape.

Possibly in some cases a better method is to bend a strip of tray metal to approximate the contour of the arch and, after lining it with soft baseplate wax, to take an impression of the facial aspect of the teeth. (Fig. 2.)

Characteristic markings, discolorations, fillings, etc., may now be outlined on this plaster model, which is set aside with a chart bearing the same data and, in addition, the shade of each tooth and the color of the markings on each tooth. This small plaster model, in conjunction with the chart, gives all the data necessary to reproduce the teeth to be extracted and can be used by the dentist or his laboratory with equal facility. (Fig. 3.)

The teeth to be removed are now marked on the stone model, and the necks of the teeth are outlined more definitely with a sharp instrument or the point of a knife. (Fig. 4.) With a fine metal saw (not

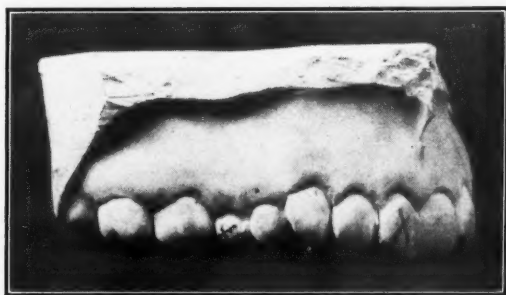


Fig. 4

Illustrating method of outlining gum festoon and making saw cuts.

a plaster saw) in the saw frame, carefully cut down to the gum line and break the tooth out, being careful not to impinge on the approximal surfaces of the adjacent teeth. These approximating teeth should be scraped to their proper contour. Now carve the socket of the tooth into the model, being careful not to cut away the gum on the facial aspect, and taper the depression up to the gum line at the lingual edge of the socket. (Fig. 5.)

Teeth are selected and ground in, the guides previously prepared being used, and are marked or stained as the operator desires. When all preparatory work has been completed, the appearance checked against the mouth, and the patient's approval obtained, the case may be finished without the necessity of a try-in.

The restoration is now ready and, as soon as the natural teeth are extracted, it may be inserted immediately in the patient's mouth with



Fig. 5

Cast completely prepared for designing and constructing denture.

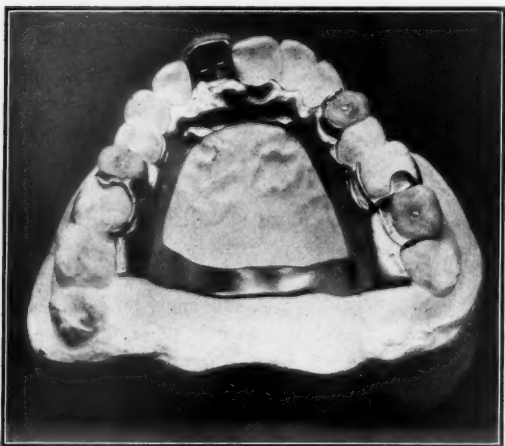


Fig. 6

Denture in position—lingual view. Because the teeth to be restored are isolated, it was possible to construct a permanent denture in this case.

a minimum amount of grinding and fitting. The only precaution necessary is to scour the restoration thoroughly with soap and water and wipe with alcohol before placing it in the mouth, to avoid infection of the open wounds. (Fig. 6.)

ADVANTAGES

This method has the following advantages:

1. The patient is not without teeth at any time and, furthermore, is assured as to the appearance of the new teeth before extraction.
2. The mouth heals better and more quickly, in most cases with less pain and soreness.
3. The operator and the patient both economize in time, as with proper data the laboratory technician can carry the work through satisfactorily.
4. Better esthetic results are assured than when the work is rushed through after extraction.

51 East 42nd Street.



Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland

Professor of Prosthetic Dentistry, University of Zurich

(Literary Collaboration by George Wood Clapp, D.D.S.)

Third Article

EXPERIENCES WITH CROSS-BITE SET-UPS—(Continued)

About 1910, convinced that no adaptation of normal-bite teeth would ever be entirely satisfactory in cross-bite relation, I undertook to carve special cross-bite forms in bicuspid and molars, but I speedily encountered serious difficulties. At that time I had formulated the principles which were to be employed in producing the occlusal surfaces of normal-bite bicuspid and molars. It was evident that these principles must govern the formation of the occlusal surfaces of cross-bite teeth as well as of normal-bite teeth.

The years, 1910 to 1913, inclusive, were fully occupied in the labors of producing normal-bite bicuspid and molars.

In September, 1913, I had the pleasure of teaching in America two postgraduate courses in denture prosthesis. Just prior to that time, and subsequent to it, impression-taking and bite-taking were carried to such a degree of perfection that many American dentists felt themselves able to make successful dentures for any edentulous case, using normal-bite teeth in normal relation. They were apparently justified in their belief, because for a year or so the dentures made with the new technic were satisfactory even when normal-bite teeth were set outside the maxillary ridge. During this visit to America I learned the new impression technic and upon my return practiced it in the Dental College at Zurich. I learned from experience that however satisfactory dentures made in this way may be during the first year, no adaptation of the dentures can continue sufficiently perfect to enable them to withstand the force of mastication if normal-bite teeth are placed outside the maxillary ridge.

I laugh now when I recall a clinic that I gave soon after my return to Europe. With the new impression technic I made for a patient dentures which were so well adapted that I did as I had seen done in America—I seized hold of the maxillary denture and shook the patient violently without dislodging it. Three months later the patient returned, complaining that chewing upon soft bread would dislodge the denture. So great had been my confidence in the improved impression technic that the maxillary second molars had been placed just a little outside the ridge. Slight changes in the supporting tissues had

probably occurred and the least pressure on these molars now dislodged the denture. When the buccal cusps were ground to relieve them from contact with the mandibular teeth, the denture stayed well in place. If many clinicians who show apparently perfect results would exhibit their patients after an interval of three months, the results might be much like mine.

Extensive personal experience and the much more extended experience of my students have convinced me that no impression can be so perfect but that the denture will eventually be easily dislodged when the location of the maxillary teeth is such as to bring pressure during mastication outside the crest of the maxillary ridge. And many maxillary dentures which are easily dislodged can be made stable again by grinding the maxillary buccal cusps in such way as practically to remove the overjet.

In 1914 the War began and labors of research not connected with war were out of the question in Europe. Up to this time I appeared to stand quite alone in my efforts for constructive improvements in cross-bite teeth, except that in 1899 Dr. Eugene Müller of Zurich had published the first important public contribution by calling attention to the changing widths of maxillae, following extraction, and suggesting a cross-bite arrangement of the teeth.

In 1919 the publication by Professor V. Bloch of Copenhagen of the results of long and careful studies as to the atrophical changes in the maxillae, a closing paragraph of which is quoted at the end of this article, showed that other investigators were beginning to think about these problems much as I did. An article entitled *Retention of Artificial Dentures* by J. L. Elphinstone, D.D.S., of Aberdeen, Scotland, in the *Dental Cosmos* for December, 1923, suggested a cross-bite arrangement of the artificial molars. This was subsequent to most of my studies and discoveries, but I had published nothing about them as I wished to be sure of my ground before offering constructive suggestions, since these could be of practical value only if they were accompanied by new forms of teeth with which dentists could achieve the results I believed to be possible.

It will be interesting to reproduce here a few words from the closing part of the paper by Professor Bloch in which he concludes that teeth suitable for extreme resorption cases cannot satisfy both the esthetic and the efficiency requirements, and that it is desirable to subordinate beauty to efficiency, at least in these teeth. I was by no means prepared to accept this conclusion and set myself more diligently than before to the production of cross-bite tooth forms that would satisfy the requirements of esthetics and efficiency.

"Consideration as to beauty is of so little importance in such cases

that any reasonable claim to it must be considered fulfilled when the artificial denture does not betray its presence by an unnatural appearance. A more accurate knowledge of the change to which the jaw bones are susceptible and the changes in the mucous membrane will soon lead to an understanding of the difficulties the treatment meets with and the necessity of sacrificing the cosmetic regards for the benefit of utility, while at the same time a certain doubt will arise as to whether it will be possible to fulfil the claims of the doctrine of articulation, and especially as to whether any result can be gained by attempting to comply with them."*

* *Atrophical Changes in the Shape of the Human Jaw Bones*, by Prof. V. Bloch, Copenhagen, 1919.

(To be continued)



PERCY HOWE'S LETTERS

In Collaboration with "Brother Bill"

FIFTH LETTER

Dr. Howe presents some evidence of active circulation in the dentin of experimental animals.

My dear Doctor:

You ask what I am trying to prove by experiments on animals. I am not trying to prove anything; I'm trying to learn something. When you start to prove a preconceived notion, you are very likely to emphasize every favorable item and minimize every unfavorable one. You'll go farther and do better if you try to keep your mind open to the truth as it comes to you.

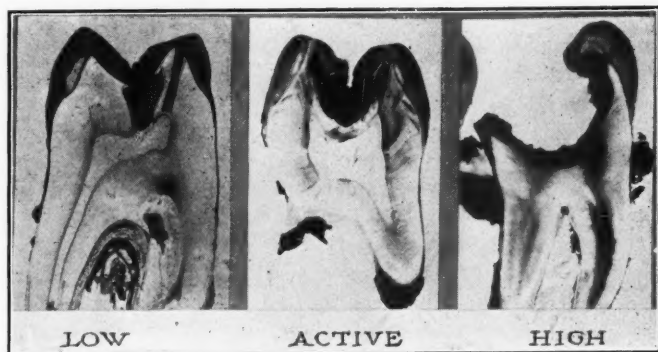


Fig. 2

RELATIVE RESISTANCE TO CARIES

(Specimens by C. F. Bödecker, D.D.S.)

In the tooth on the left, the agents of decay entered through a fissure not shown in the picture. They met little resistance and proceeded directly and by a narrow path to the pulp.

In the tooth in the center, the agents of decay entered through the fissure shown, apparently met some resistance, and mushroomed sidewise. While the attacking forces were held at bay, so to speak, the pulp built up a large pulp stone covering the entire line of the approaching attack.

In the tooth on the right, the pulp built successive walls of dentin between itself and the attacking forces and, though it had retreated to the pulp canals, it was vital when the tooth was extracted. The dentin lining the cavity was very dark and very hard and the progress of caries had apparently been arrested.

For more than forty years I have been puzzled by the facts that in some unclean mouths the arches are broad, the teeth sound and the

tissues healthy, while in other mouths which receive good office and home care the arches are crowded, the teeth decay recurrently and the tissues exhibit low tone. Sometimes the dentin is very soft, and I should think it would offer little resistance to the agents of decay. At other times the same dentin is very hard, and I should think it would offer greater resistance. Sometimes caries of the dentin is spontaneously arrested and the cavity becomes floored over with a hard, dark dentin, which seems to form excellent protection for the pulp and may be safely used as part of the base for a filling. By the courtesy of Dr. C. F. Bödecker I show you an illustration of three teeth representing what seem to me like different degrees of resistance to the agents of decay (Fig. 2).

It is now pretty generally believed that we constantly carry about with us the germs of some of the most deadly diseases, such as pneumonia and tuberculosis. When the physiological threshold is high, these germs are held in subjection, but when that threshold is lowered, they attack more or less successfully. I have an idea that the acids and bacteria which are probably the immediate causes of caries are present in every mouth, and that when the threshold is high, they may be few and weak, but when the threshold is lowered, they may increase in quantity and strength and in power of attack. The same lowering of the threshold might lower the resisting power of the dentin to the stronger attack.

Almost every time I say something like this in public some one rises to call my attention to the importance of heredity and environment. For fear that you may come back at me in that way, let me show you a picture (Fig. 3), recently drawn by a friend of mine, which illustrates some of the conditions under which attacks succeed or fail. It shows a giant pushing at a boulder. His effort is opposed by the size, form and weight of the rock, which correspond somewhat to heredity in human beings, and by the softness of the ground and the number of other rocks in his way, which are part of the environment. If his attack is stronger than heredity and environment combined, he will topple the rock; otherwise he will not.

Out of numberless experiences our forefathers developed and transmitted our form, our vitality and our relative immunity to certain attacks. Our daily environment may uphold or lower that immunity. Every element in the environment which may uphold it is very important, including sunlight, food, work, mental attitude, recreation, etc. The mere fact that I am studying and trying to describe a few minor effects of some depressors in an obscure corner of a broad science is not to be interpreted as meaning that I do not give to all the other effects in all the other corners their proper importance.

And so I started with an open mind to find out what effect on

dental and oral conditions would result from lowering the physiological threshold in experimental animals. Let me summarize the story of my findings in a single sentence. In monkeys, in which the anatomy, physiology and pathology are very much as they are in humans, a lowering of the physiological threshold may be followed by retardation of cranial and facial growth, by changes in dental arch form, by decay of the teeth, by resorption of the tooth-supporting tissues, by extensive destruction of the jaw bones, and, if the threshold is lowered far enough, by death; in guinea-pigs, which have continuously growing teeth, the pulps and dentin may be destroyed without caries.

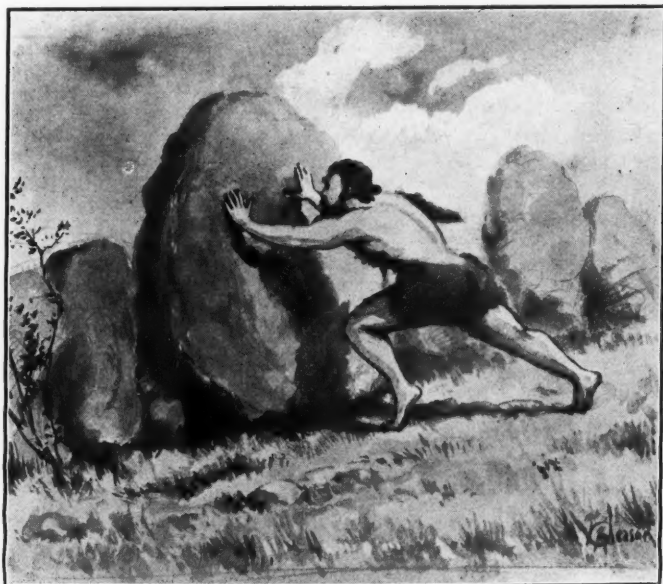
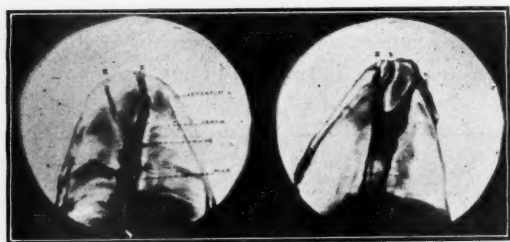


Fig. 3

In order to understand a little better what happened, I found it necessary to review that portion of dental anatomy which relates to the blood supply of a tooth and the circulation within the tooth. As a dental student I was brought up to think that there was one apical foramen to each root, that it was rarely larger than a fine broach when the tooth was fully developed, and that through it passed the artery, vein, nerve and lymph vessels. Perhaps an unconscious realization of how tiny each of such vessels would be led to the thought that there was but little circulation in a tooth, and that it was pretty well shut

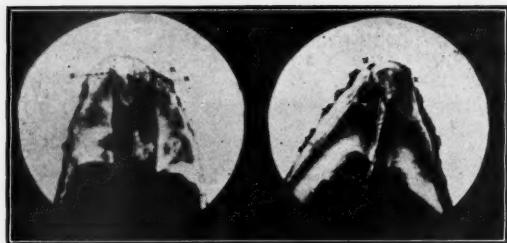
off from the rest of the body by this narrow channel through which it must pass.

But Prof. Okumura and others have shown us that multiple foramina may be demonstrated in a very large percentage of teeth and, merely to refresh your mind, I offer one picture of such foramina (Fig. 4). So you see that the circulation of a large percentage of



Second Right Upper Bicuspid

Right Lower Central



Second Right Upper Bicuspid

Right Upper Cuspid

Fig. 4

SECTIONS OF SOME SINGLE-ROOTED TEETH

Probably half of all incisors and more than half of all other teeth show some internal form other than a single straight canal leading to a single foramen. The sections here illustrated are from the work of Dr. T. Okumura of the Tokyo Dental College, Japan, and are shown through the courtesy of Dr. Paul Poetschke.

human teeth is much more liberal and in much more intimate contact with the general circulation than we formerly supposed. I do not know whether or not this is true of monkey teeth, but it is well to bear it in mind when thinking about human patients, because some of the things that you are going to hear about in animals will run pretty closely parallel to things you see daily in practice, and it will be well to have your mental background all arranged.

Let us see whether we find any evidences of active circulation in the teeth of experimental animals. There are a number of minerals which

can be fed in solution and whose presence can be demonstrated by accepted chemical and photometric methods. Among these are ferric lactate, copper acetate and lead citrate. If, with a medicine dropper, we feed ferric lactate into the mouths of a group of guinea-pigs and post-mortem one of them in thirty minutes, the ferric lactate will be found in the pulps. In twelve hours it will be found to have penetrated

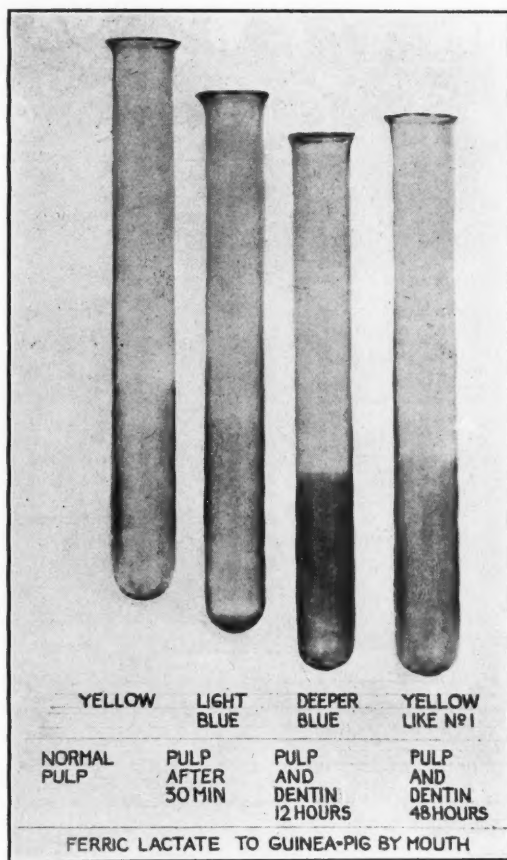


Fig. 5

the dentin as far as the dento-enamel junction. In forty-eight hours every trace of it will have gone from the tooth. I do not know that I have been so surprised at finding the ferric lactate in the teeth, but the astonishment that it should be completely removed in forty-eight

hours from so highly calcified a tissue as dentin never entirely dies out of my mind. (Fig. 5.)

At this point some one will say, "It doesn't mean anything to find the mineral in the dentin of a guinea-pig or have it taken up in forty-eight hours because a guinea-pig's teeth grow continually while my patients' teeth do not." Very well, let us take a dog, whose teeth do not grow continually, and inject into the peritoneal cavity a stain which will circulate, unchanged, in the blood stream. Fig. 6 is from a section of a dog's molar. Unfortunately, it cannot be given here in color, but you may accept my assurance that in three hours from the time of the injection the dentin was saturated with the stain, and I think some of it entered the enamel.



Fig. 6

Section of a molar of a dog. Vital red injected intraperitoneally reached the dento-enamel junction in three hours.

While I do not care to make any statements about enamel at this time, I want to show you, merely in passing, a picture of the enamel from a molar of a man who worked in the lead room of an electrical concern. It is not probable that he ate lead, but it is highly probable that he inhaled it and handled it. It got sufficiently into his system to saturate the enamel of this molar, as shown in Fig. 7.

Your guess as to how the lead got there may be as good as mine, and if you say that he breathed in fine particles, some of which got into the saliva and into the enamel by direct contact, I shall neither affirm nor deny it. But here is a harder nut to crack on that theory. In cases of this form of lead poisoning, lead is stored in the bones until they will not take up any more. As long as the bones will accept deposits, the man is not ill with lead poisoning. But when the bones cannot or will not store more lead, or when they begin to give up their lead, the person is ill with lead poisoning. This man's bones had

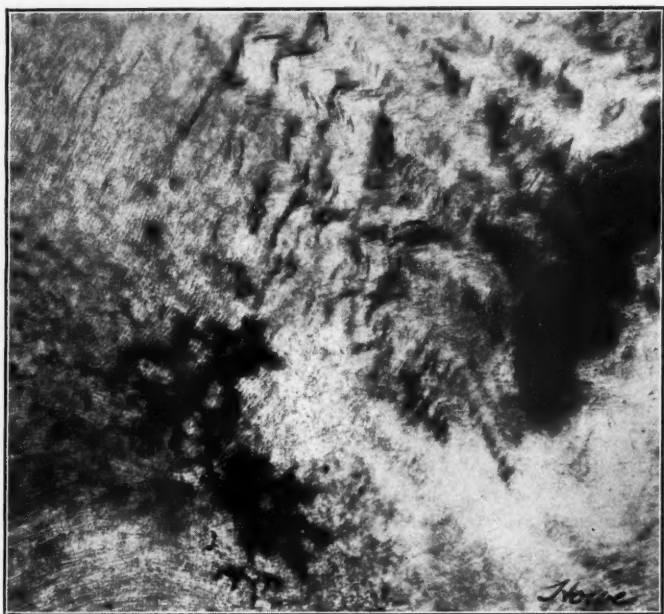


Fig. 7

When a section of the human molar referred to in the text was stained with ammonium sulphide, the lead with which it was impregnated appeared as black areas.

accepted liberal deposits of lead. How could they have gotten there except through the circulatory system?



Having thus arranged part of our mental background, let us set about lowering the physiological threshold in a group of experimental animals. We will begin with guinea-pigs, because they are small, easily handled and inexpensive and we can post-mortem as often as we like to observe results. Few laboratories have sufficient funds to sacrifice monkeys in this way because they cost about \$30.00 each and a single experiment might easily cost up to \$1000.

By all means the best experimental method of lowering the physiological threshold is to change the diet, not by depriving the animal of a sufficient quantity of food but by removing one or more of the elements considered essential to the optimum of health. We prefer to remove Vitamin C.

From our point of view it is important that the food should be

hard so as to insure to the teeth and the jaws all the benefits that accrue from thorough mastication. So we take soy-beans (50%), rolled oats (28%), dried whole milk (10%), yeast (4%), butter (5%), agar (1%), calcium carbonate (1%), and sodium chloride (1%), mix, moisten with water and bake into a hard cracker. We feed a liberal quantity of pure cellulose, in the form of filter paper, as roughage. That diet contains enough of everything to sustain life except Vitamin C, and we may be sure that no animal is going to get his living from it unless he chews hard and long.

No animal is going to get his living from it very long no matter how hard he chews, because if it is not changed, all the animals fed exclusively upon it will be dead in four weeks. You will say that the study of such a diet is of no value because such deficiencies do not occur in human diet. You would be surprised to know how closely parallel to this is the diet in some very fine American homes. Recently there came to the laboratory a prominent physician, the head of an important part of a great hospital and the father of three children. He is tall and thin and has been trying for years to increase his weight so that it would correspond to his height. Let me outline his diet as he did in reply to my questions. In this outline the symbol (a) means *acid ash*; (b) means *basic ash*.

Breakfast: Cooked fruit and cereal (a), pasteurized milk and cream. Bacon and eggs (a), toast (a), butter, coffee.

Lunch: Pea or bean or meat soup (a).
Meat or fish (a), potatoes (b), bread and butter (a).
Pie or pudding (generally a), coffee, pasteurized milk or cream.

Dinner: Soup.
Meat (a), potatoes (b), other cooked vegetables such as beans (a), corn (a).
Bread and butter (a).
Pie or pudding (generally a), coffee.

Now that diet, taken just as it reads, is so deficient in calcium and Vitamin C that I could not keep a guinea-pig alive on it a month. Neither the physician nor his family is suffering from serious defects, though there are frequent minor ills. What saves them? The fact that every once in a while they get hungry for fruits and vegetables and have oranges or apples or an uncooked salad.

I have taken the time to tell you this story because never again may I have such a good illustration for a message that I want very much to get across. This physician has done work which commands the admiration of his fellows in the profession. In few families can

there be even a tithe of the medical knowledge he has acquired. Yet the basic diet in that family is seriously at fault, as I see it, and the corrections are incidental. How much better it would be if the corrections were deliberate and the faults incidental!

This basic diet can be corrected by habitually substituting a raw fruit for the cooked breakfast fruit. For those who can eat them oranges are unequalled, perhaps with grapefruit next, but any raw fruit is good. Many people who cannot eat oranges at a meal derive great benefit from eating them from fifteen to thirty minutes before the meal and taking a glass of warm water at the same time.

The lunch can be corrected by substituting a liberal salad of raw vegetables or vegetables and fruit for the meat or fish. Such a salad may contain lettuce, raw cabbage, raw pineapple, bananas and other vegetables and fruits, and its value will be greatly increased if a raw carrot is sliced or grated in. A delicious and nutritious salad, which may be eaten *ad libitum*, is made by slicing oranges and pineapple into gelatine. Eat it with whipped cream, perhaps flavored with a trace of vanilla.

The dinner may be corrected by seeing that some vegetable not included in the lunch salad is eaten raw, such as tomatoes or celery, and that squash, carrots and beets are frequently included in the cooked vegetables. Good ice-cream makes an excellent dessert.

If the milk is pasteurized, its food value can be greatly increased by adding a teaspoonful of orange juice to each glass. This will be especially valuable for children or any members of the family who are trying to gain weight, but it is contra-indicated for those who are trying to lose weight.

I didn't mean to turn away from guinea-pigs and their diet to humans and their diet, but the illustration was too good to pass. Next time I shall try to show you a few of the things that happen to the teeth of guinea-pigs on a diet seriously deficient in Vitamin C.

Yours respectfully,

Percy R. Howe



Important Factors In Denture Construction*

By W. H. Wright, D.D.S., Pittsburgh, Pa.

A SUMMARY

Denture construction is too often considered as merely a mechanical procedure when in reality it is a health service. The dentist, engrossed in the technicalities of the case, seems to forget that his duty is the restoration of lost tissue and function, and that he is dealing with a human being. Even the best methods and appliances cannot give a result that approaches the ideal natural dentition, but the means which we now have at hand are far superior to those in use years ago. A great deal has been done to advance denture service in the past ten years.

The primary idea behind the construction of a denture is the restoration of lost function—the equipping of the edentulous person with the means for mastication. This is fundamentally a health service. In addition to function are appearance and comfort. Function can be made possible only by the correlation of all parts that go to make up a technic. The influence of all factors must be studied. At times overemphasis has been laid on some particular point, such as impression-taking or the proper kind of articulator. No one thing is the controlling factor. They are all interrelated, and we must remember that the final and deciding factor is the operator himself. No matter how good the technic, or how modern and perfect the instruments used, unless the dentist has the skill and the ability, the result will not be satisfactory.

The restoration of function depends upon two groups of factors. The first is not under the control of the operator and consists of the anatomical, physiologic, and mental characteristics of the patient. Too often, when failures are due to these causes, the operator will continue to remake dentures with no charge, although the fault may not be due to him at all. If the physical condition of the patient is such that abnormally rapid absorption of tissue takes place, surely the dentist cannot be blamed if the dentures become loose in a very short time. Owing to certain abnormal anatomical characteristics, even the best made dentures will not remain in place. The dentist should be able to recognize the reason for the failure.

Failure may be due to lack of knowledge on the part of the dentist. Just because the patient can wear the dentures and apparently get along with them does not necessarily mean that they are the best that

* This paper was given before the Prosthetic Section of the First District Dental Society, New York, November 22, 1926.

can be made for that particular case. Some patients can use almost any kind of denture, and if for this reason the operator inserts a denture when it could be improved, he is not giving the service that is expected of him.

The chief factor influencing the function of a denture is that of retention. The form and extent of the supporting tissue is important. Too often we are tempted to overextend a denture. This will cause discomfort and failure just as surely as when it is underextended. The physical properties of the tissues—their hard and soft characteristics—must be given due consideration. Large ridges covered with resilient tissue make the best foundation; small ridges with hard tissue the poorest. The greater the area that can be covered with comfort to the patient, the better the chance for successful retention. The impression should be regarded as a survey of mouth conditions rather than the foundation for the construction of the denture.

Another important factor in retention is the quantity and quality of the saliva. The saliva adheres to the tissue, and the denture and the molecules are held together by cohesion. This cohesion may be the weakest link in the success of a denture. A thin, watery saliva is just as bad as one that is thick and ropy. The former does not provide proper cohesion, while the latter is too bulky and does not permit a proper contact of the plate with the supporting tissue.

The third factor in retention is the consideration of the magnitude and direction of the forces that will be applied to the denture, and this is also correlated with the relations and forces of the jaws. Occlusions must be balanced so that the forces may be distributed over the entire surface of the denture. Dentures as a rule function in neutral equilibrium; that is, while they may change position under stress, they tend to return to their original position.

To be able to make scientific dentures, the mechanical equipment of the dentist must be sound and practical, but the operator must thoroughly understand its use. The face bow is used to supply the record for mounting the upper case in the articulator. At one time we thought it should also establish the relationship between the upper and lower casts. We now know that this is not necessary.

Centric relation is most important. It is the starting point of all major mandibular movements and the termination of the working stroke. The condyles must be in the most distal, unstrained functional position. It is a very hard thing to register correctly, but with care and patience it can be attained, and there must be no pressure on the bite rims while it is being secured. The intermaxillary space must be chosen to meet the anatomical, physiological, mechanical, and esthetic requirements.

When centric relation has been established, we next secure the pro-

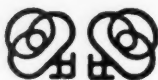
trusive and lateral relations. These are obtained in various ways according to the kind of adjustable articulator used, and there are ways of checking each step. If a non-adjustable articulator is employed, this rechecking cannot be done, with the result that a denture is carried through to completion, and, if it is found to be a failure, the dentist has no way of knowing where the mistake was made.

Balanced articulation means balanced occlusion and balanced relation of the jaws in function. It is a complex and complicated condition, but it may be obtained readily with the proper knowledge, skill and equipment. In fact, when the technic is once mastered, it is much easier than the old hit-or-miss method.

Phonetics is an aid in attaining correct esthetics. When a patient can enunciate properly, it means that the teeth are just about in the right place.

Of course esthetics is important, but not paramount. A patient has the right to wish to look as well as possible, but if, in carrying out this desire, the operator has to sacrifice efficiency, then he should disregard the wishes of the patient. The functioning of a denture is the prime requisite, and a well-functioning, fair-looking denture is better than a fair-functioning, excellent-looking one. The mere fact that a patient can wear a denture is no evidence in regard to its efficiency.

The dentist must realize that a successful denture is a combination of the influences of all the factors, and that a great many failures are due to lack of skill and knowledge on the part of the dentist himself. He should blame himself most of the time and then set about to improve his ability.



Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director,
Surgical Periodontia Department, Midtown Hospital, New York

(Continued from April)

SURGICAL TECHNIC

ASEPSIS

¶ 106. It is a serious mistake to disregard asepsis when operating in the oral cavity, just because the mouth is a septic field. One must bear in mind that secondary infection is a thing to be reckoned with.

¶ 107. The simplest, quickest and most efficient way to disinfect the field of operation is to paint the tissues with tincture of iodine.



Fig. 112

DRESSING OF A PATIENT FOR AN ORAL OPERATION

Three sterile towels and two safety pins are all that is needed to drape a patient for an oral operation. One towel is placed on the head and pulled down over the eyes; the other is placed under the chin, and the two are then pinned together. (See ¶ 109.)

¶ 108. In order not to break the chain of asepsis, the operator should be careful to touch nothing that it is not absolutely necessary to touch.

¶ 109. A sterile towel placed over the patient's head in such manner that it covers the eyes keeps the hair from falling on instruments and the operator's hands and thus aids in maintaining sterility. It also reduces shock. (See Fig. 112.)

¶ 110. It is wise to use rubber gloves whenever possible. The benefit from this is two-fold: (1) they protect the operator from infection, and (2) they help asepsis.

¶ 111. Asepsis must not be disregarded when dressing suppurative lesions, for there is always the danger of secondary infection.

¶ 112. Sterile gauze may be advantageously used for the purpose of isolating the areas to be operated upon from the rest of the oral cavity. This may be accomplished by packing the gauze into the labial and buccal folds under the tongue. It may be used also to cover the lips, moustache, beard, etc.

¶ 113. Sharp cutting-instruments may be sterilized in alcohol. Other instruments ought to be boiled for at least a half-hour.

¶ 114. To swab bleeding surfaces during an operation, sterile gauze may be used. If there is no facility for sterilizing gauze in the office, it may be obtained from a druggist. Several firms put on the market packages of gauze conveniently folded in sealed individual envelopes.

¶ 115. Excess of iodine that has been painted on surfaces during an operation for disinfecting purposes should be wiped off with alcohol or ether. This precaution may at times save the patient considerable discomfort from iodine burning.

¶ 116. Bicarbonate of soda added in small quantity to boiling water in the sterilizer will keep the instruments bright and free from rust.

¶ 117. A little vaseline applied on the joints of scissors, hemostats and forceps will prevent them from becoming stiff.

¶ 118. The points of scalpels and bistouries may be saved from breaking by being inserted in a cork.

GENERAL CONSIDERATIONS

¶ 119. An unobstructed and clear field of operation is one of the elementary principles of surgery. Therefore all incisions and flaps should be made sufficiently large to permit the operator to approach easily the part which is to be operated upon and to allow him to examine it at the termination of the operation.

¶ 120. Cases that have to be operated upon for conditions revealed by roentgenographic examinations only must not be handled too hastily. There are instances in which such operations have been performed unnecessarily through error. Therefore great care should be taken to ascertain beyond the shadow of a doubt that the roentgenograms which

show a condition requiring surgical interference are of the *same individual* who is being subjected to the operation; also, that the area disclosing the particular abnormal or pathological condition is definitely localized, and that the condition which requires the operation has not already been operated upon.

¶ 121. The healing of a wound depends to a large extent on the resistance of the tissues; therefore in operating great care must be exercised not to traumatize the structures unnecessarily. It should be the aim of the operator not only to do the operation but to do it *as well as possible*.

¶ 122. An operator should never fail to ask the patient who is to undergo a surgical operation whether he himself or any other members of his family have any tendency to bleed.

¶ 123. A study of a roentgenogram of a case which is to be operated upon is the first step in a surgical operation. "Pulling" of a tooth should be no exception to this hard and fast rule.

¶ 124. Preparations should be made to meet any emergency that may arise during the operation. The operator who thinks that he may not be able to cope with difficulties if they should arise had better not begin to operate.

¶ 125. It must be explained to the patient that under local anesthesia the sensations of *touch* and *pressure* are present. These, however, should not be confused with the sensation of *pain*, which cannot be felt when the parts are well anesthetized. At the moment the patient says, "It hurts," operating should be stopped and an attempt made to secure a better anesthesia. It is unjustifiable to continue operating while the patient suffers from pain due either to lack of anesthesia or to poor anesthesia.

¶ 126. During oral operations the cheeks, lips and tongue should be well retracted. Bleeding surfaces should be kept dry by sponging them with swabs of gauze or a suction apparatus, and all parts operated upon should be well illuminated.

355 East 149th Street.

(To be continued)



Taking Impressions for Inlays*

By William A. Spring, D.D.S., New York, N. Y.

It is probably true that in the early days of the gold inlay the direct method, advocated by Taggart, produced more universally accurate results than the indirect. A wax form, once nicely adapted, may be removed from many cavities of which it is practically impossible to take an impression by the indirect method. The profession has made big strides since those days. Changes in cavity preparation have greatly simplified the work, and many new tricks in impression-taking have brought a degree of accuracy not dreamed of then.

We have learned that an impression tray should approximate as nearly as possible all the margins of the cavity, so that the compound may be so thoroughly expressed as to leave but a very thin amount at the margins. I keep a sheet of 28-gauge German silver handy and cut out and fit a tray for each buccal or labial cavity, making the tray long enough to include considerable of the tooth surface. If the cavity is beneath or even near the gum, I have my assistant hold the gum back with an instrument (sometimes two or three) pressed against the root of the tooth. The tray should be heated and a proper amount of compound stuck to it. After chilling, the compound should be formed to point to the bottom of the cavity and again chilled. With the cavity slightly moistened with vaseline, quickly heat the point of the cone-shaped compound, place it in position and then with a chisel press it to place, chill and remove. Approximal cavity impressions may be more accurately secured with a copper band.

Before describing my method, I will mention two that I once used but have now discarded. In one we place a matrix between the teeth, contact with the cervical margin being secured by suitable wedges, and the ends of the matrix being turned back to engage the softened frustum of compound when the impression is taken. If the surface of the tooth outside the cavity forms only a slight undercut, it can be removed just the same, because the compound when pressed home is not confined on either the buccal or the lingual surface and, rolling back slightly, is not in close contact with the tooth. It is also true, when a copper cap filled with compound is used and pressed over the cavity, that contact with the buccal and lingual surfaces is not close, thus permitting the removal of such an impression. It is this lack of close fit which has influenced my using a band.

If, however, we use a copper band, carefully confine the compound and thereby secure a close fit everywhere, there is danger of warping the impression unless special precautions are taken.

* From a clinic before the First District Dental Society, New York, December 8, 1926.

Recognition of the fact that the long axis of the tooth crown is rarely, if ever, the same as the line of direction of the exit of the cavity led me to my present technic, which is as follows:

I select a long copper band, 36-gauge, larger than the circumference of the tooth, anneal it and plunge it into ice water, cut a notch for the tooth opposite the cavity, and cut the sides away to spare the gums, leaving the approximal part long enough to reach well beyond the cavity margin. The gum must have been sufficiently pressed away at a previous date with chloro-percha on cotton so as to leave no uncertainty of vision. When the band is adjusted, it is pinched with orthodontic band-pinching pliers. A wedge is then placed at the cervical margin to secure proper approximation. The cavity is wiped with vaseline, and a section of a rod of compound warmed at the end and pressed home. After chilling, the band is cut apart and a gentle test is made to remove the impression. If any resistance is noted, the band is removed, leaving the impression in the cavity, and portions of the compound covering those surfaces not required in the impression and offering resistance are removed.

It usually happens that the removal of the band which controlled the direction of removal is sufficient, but in cases of strong approximal contour of a tooth the compound which hugs the external surface of the tooth must be removed. At all events, the impression, when finally removed, comes out so easily that it almost drops into your hands and you know that there is no warpage.

I frequently disk the approximal surface of a tooth and cover the flattened surface with the inlay, but it is not always desirable to do so, and with this method one is relieved of the necessity of that procedure. When a band can be pinched, one wastes no time in hunting for a good fit, for any band that is too big will do. In places where it seems impossible to pinch a band, I select one of accurate size and with an engine saw cut the band in two instead. In that case the band may be made considerably shorter at some point so as to avoid a saw cut too near the gum.

Since adopting this method of taking impressions I believe I am making more accurate inlays by the indirect method than I formerly did by the direct method.

I should like to show a method of stretching the gold of a casting that is too short. Very long approximal inlays, and especially M.O.D.'s, are sometimes short at the cervical margin.

I place the inlay in the amalgam die, which must be placed so as to rest firmly on some proper support. A chisel is then pressed against the gold about one millimeter from the cervical margin. A few good hammer blows will force the gold to a close fit. After that the engine burnisher will spin it over the edge.

The advantage of this over the engine burnisher alone is that a bigger bulk of gold can be moved instead of just the surface. More than that, it can be moved a greater distance. It is well to cast such parts of the filling somewhat full. If the chisel cut is not sufficiently obliterated in the engine burnishing, a little solder will fill it.

8 West 40th Street.

Amalgam*

By John T. Hanks, D.D.S., New York, N. Y.

President, First District Dental Society, New York

Alloys are now made so perfectly to given formulas and the process of manufacture has been so standardized that there is little, if any, variation. There are two types of alloy, those having a high silver content and those having a low silver content. The former are known as quick-setting; they have a greater edge and crushing strength and take a better polish. The high silver content alloys are in more general use and are the ones referred to in the rest of the clinic.

Alloys now are so scientifically made that Dr. Harper says that all amalgam failures are due strictly to the dentist. Leaky fillings are generally caused by improper cavity preparation, improper mixing of the amalgam, or poor condensing in the cavity. Recurrent decay is generally due to the failure to remove the decay in the first place and is not really recurrent but a continuation of the original caries. In addition to poor cavity preparation, the two greatest sources of failure are insufficient mixing time and insufficient packing pressure, and the former is by far the more important. The minimum time for trituration with mortar and pestle is three minutes, and this period should not be guessed at. The use of a sand-glass is a valuable aid.

The cavity preparation is the same as for any other kind of filling, except that the cavo-surface angle is not beveled. The Black system of preparation is recommended. Floors should be flat for resistance and to prevent the rocking of the filling, but there is no need of making any special effort for retention, such as pits or undercuts. A properly packed amalgam filling will stay perfectly well in a cavity prepared for a gold inlay. The only place that a bevel should be used is at the cervical margin. In all compound cavities a matrix must be used. The clinician uses matrices, which he cuts to fit the individual case from sheet steel .003 inches thick. He finds these more satisfactory than the manufactured ones.

* Report of a table clinic before the Washington Heights Dental Society, New York, N. Y., December 21, 1926.

In mixing the alloy the directions of the manufacturer must be followed implicitly. The proportion of mercury and alloy should be weighed out to insure uniformity, the correct proportions and the avoidance of waste. The general average for a high silver content alloy is eight parts of mercury to five of alloy. These should be mixed in a mortar. The use of mechanical mixing devices is not recommended, as they do not produce proper amalgamation. There must be no uncombined mercury.

Everything should be in readiness to insert the filling when the mix is started, since in a high-grade alloy there are only six or seven minutes of working time. The mix should be kept warm and agitated. This may be accomplished by having the assistant hold it and work it in her hand.

The first part of the filling should not have any of the mercury squeezed out. It should be very plastic, so that it may be forced into every corner and unevenness of the cavity. As the filling progresses, the mix should be made drier and drier and compressed with sufficient force so that the excess of mercury in the first part will be forced up to the surface. This excess is wiped off. If too much mercury is expressed before starting to insert the filling, it will be difficult to adapt the amalgam to the cavity walls, and if the amalgam is inserted after it has begun to set, the finished filling will lack crushing strength. If not enough has been removed, then the excess will evaporate out on the surface, giving the filling a granular appearance, and hot food or drink will cause a change in the interior.

In a high-grade alloy the carving may be started as soon as the filling is completed, and as soon as that is finished, the filling is so hard that the matrix may be removed without danger.

17 Park Avenue.

Research On Metallic Cooking Utensils

The Mellon Institute of Industrial Research of Pittsburgh, Pa., announces that it will undertake a comprehensive study of the effects of the corrosion of metallic cooking utensils during the preparation of foods. The investigation will cover the effect upon the animal body of the metal taken up with the cooked food as well as the effect of the material of the utensil upon the food constituents, particularly the vitamins. Dr. Erich W. Schwartze will conduct the investigation.



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American Dental Association

DETROIT, MICHIGAN—OCTOBER 24-28, 1927

HOTEL RESERVATIONS

In securing hotel reservations for the 1927 Session, consult the hotel rate-sheet and fill out the blank application. Mail it immediately to the hotel you wish to patronize. The hotel will then advise you of the reservation which they make for you.

WILLIAM T. BURKE, Chairman, Halls and Hotels,
507 Fine Arts Bldg., Detroit, Michigan

HOTEL	Rooms	WITH BATH		WITHOUT BATH	
		One Person	Two Persons	One Person	Two Persons
BOOK-CADILLAC, Michigan & Washington Blvd.	1200	\$4.00	\$6.00		
STATLER, Grand Circus Park.....	1000	3.00	5.00		
TULLER, Grand Circus Park.....	800	2.50	5.00		
SAVOY, Woodward and Adelaide.....	750	2.50	4.00		
DETROIT-LELAND, Cass and Bagley.....	700	3.00	5.00		
BARLUM, Cadillac Square and Bates.....	810	2.50	4.00		
FORT SHELBY, Lafayette and First.....	393	3.00	4.50	\$2.50	\$3.50
FORT WAYNE, Cass and Temple.....	300	2.50	3.50		
IMPERIAL, 26 Peterboro.....	170	3.00	5.00		
MADISON-LENNOX, Madison Ave.....	300	2.50	4.00	2.00	3.00
NORTON, Jefferson and Griswold.....	250	2.75	4.50	2.00	3.50
PALMETTO, John R. and Hancock.....	324	3.50	5.00		
PRINCE EDWARD, Windsor, Ont., Canada....	250	3.00	6.00		
ROYAL PALM, 2305 Park Ave.....	180	3.50	5.00		
STEVENSON, 46 Davenport.....	207	2.50	4.00		
WEBSTER HALL (Bachelor), 111 Putnam....	766	3.00		2.00	4.00
WOLVERINE, Witherell and Elizabeth.....	500	2.50	5.00		
FAIRBAIRN, Columbia and John R.....	450	2.50	4.00	1.50	3.00
PARK AVENUE, Park and Sproat.....	250	3.50	5.00		
PAUL REVERE, 67 Sproat.....	360	2.50	3.50	2.00	3.00
PLAZA, 166 Madison.....	100	2.50	3.50		
WARDELL APTS., 15 E. Kirby Ave.....	165 Apts.	\$65.00 per month and up			

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HOTEL APPLICATION

AMERICAN DENTAL ASSOCIATION, DETROIT, MICHIGAN, OCT. 24-28, 1927

..... Hotel. 1927.
Detroit, Michigan.

Please reserve the sleeping room accommodations noted below:

.....Room(s) with bath for.....people. Rate desired \$.....
(per day)
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(per day)

I hereby agree to pay for room described from morning of October to
October, unless cancellation is made by October 1, 1927.

Names and addresses of persons who will occupy room with you:

Name Address
Street, City and State.
Name Address
Street, City and State.
Name Address
Street, City and State.

Death of Dr. Charles A. Brackett

On March 20, 1927, Charles A. Brackett, D.D.S., died at Newport, R. I., where he had been in practice for a great many years. Dr. Brackett graduated from the Harvard Dental School in 1873, and the following year was made a member of the teaching staff. In June, 1924, he completed his fiftieth year of service at the School and retired with the title of Professor Emeritus of Oral Pathology. A fund is now being raised to endow a chair in his honor.



Dr. Brackett was a trustee and consulting dental surgeon of the Newport City Hospital. He was a past president of the Newport Public Library, director and vice-president of the Aquidneck National Bank, and a director of the Newport Trust Company.

In a letter, the late Charles W. Eliot, former president of Harvard, once said: "I have had intimate knowledge all these years of the nature of Dr. Brackett's services to the School and to the dental profession. It has been characterized from beginning to end by perfect disinterestedness, skill in teaching, and a strong influence for good on all his colleagues and all his students."

DENTAL LAWS

Summary of Dental License Requirements Throughout the U. S.

By Alphonso Irwin, D.D.S., Camden, N. J.

For information regarding the requirements for license to practice dentistry in the various States of the United States, address the following:

- ALABAMA: E. W. Patton, 113½ Broad Street, Selma, Ala.
ARIZONA: W. D. Shackelford, 209 Ellis Building, Phoenix, Ariz.
ARKANSAS: W. E. Hutchison, State House, Little Rock, Ark.
CALIFORNIA: O. E. Jackson, 155 Kentucky Street, Petaluma, Cal.
COLORADO: W. H. Flint, Littleton, Colo.
CONNECTICUT: A. B. Holmes, 43 Central Avenue, Waterbury, Conn.
DELAWARE: W. S. P. Coombs, Middletown, Del.
DISTRICT OF COLUMBIA: C. W. Camilier, Medical Science Building, Washington, D. C.
FLORIDA: R. P. Taylor, 414 St. James Building, Jacksonville, Fla.
GEORGIA: M. M. Forbes, 720 Hurt Building, Atlanta, Ga.
IDAHO: R. O. Jones, Commissioner, Department of Law Enforcement, Boise, Idaho.
ILLINOIS: Department of Registration and Education, Springfield, Ill.
INDIANA: J. M. Hale, Mt. Vernon, Ind.
IOWA: Director, State Department of Health, Des Moines, Iowa.
KANSAS: G. E. Burket, Kingman, Kan.
KENTUCKY: J. H. Baldwin, 636 Atherton Building, Louisville, Ky.
LOUISIANA: V. K. IRION, 727 Maison Blanche, New Orleans, La.
MAINE: G. W. Mackay, Millinocket, Me.
MARYLAND: T. L. McCarriar, 1822 North Charles Street, Baltimore, Md.
MASSACHUSETTS: W. H. Grant, Room 146, State House, Boston, Mass.
MICHIGAN: J. W. Lyons, 617 Dwight Building, Jackson Mich.
MINNESOTA: F. E. Cobb, 601 Donaldson Building, Minneapolis, Minn.
MISSISSIPPI: Reuel May, Jackson, Miss.
MISSOURI: G. E. Haigh, 405 Central Trust Building, Jefferson City, Mo.
MONTANA: M. E. Gates, 312 Power Building, Helena, Mont.

- NEBRASKA: J. D. Case, M.D., Department of Public Welfare, Lincoln, Neb.
NEVADA: C. E. Rhodes, Reno, Nev.
NEW HAMPSHIRE: H. L. Watson, 913 Elm Street, Manchester, N. H.
NEW JERSEY: J. C. Forsyth, 429 East State Street, Trenton, N. J.
NEW MEXICO: J. J. Clark, Artesia, N. M.
NEW YORK: M. J. Terry, Education Building, Albany, N. Y.
NORTH CAROLINA: H. O. Lineberger, Professional Building, Raleigh, N. C.
NORTH DAKOTA: W. E. Hocking, Devil's Lake, N. D.
OHIO: R. R. Smith, 327 East State Street, Columbus, O.
OKLAHOMA: C. A. Hess, First National Bank Building, Idabel, Okla.
OREGON: W. D. McMillan, Oregonian Building, Portland, Ore.
PENNSYLVANIA: A. H. Reynolds, 4630 Chester Avenue, Philadelphia, Pa.
RHODE ISLAND: A. L. Midgeley, 315 Butler Exchange Building, Providence, R. I.
SOUTH CAROLINA: W. B. Simmons, 107 East North Street, Greenville, S. C.
SOUTH DAKOTA: G. G. Kimball, 204 Western National Bank Building, Mitchell, S. D.
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TEXAS: D. C. Johnson, Atlanta, Tex.
UTAH: J. T. Hammond, Department of Registration, State House, Salt Lake City, Utah.
VERMONT: David Manson, 171 College Street, Burlington, Vt.
VIRGINIA: J. P. Stiff, Fredericksburg, Va.
WASHINGTON: C. R. Maybury, Director, Department of Licenses, Olympia, Wash.
WEST VIRGINIA: R. M. Hite, Mannington, W. Va.
WISCONSIN: J. L. Blish, Fond du Lac, Wis.
WYOMING: T. W. Ice, Lock Box 116, Powell, Wyoming.

-
- ALASKA: W. E. Peterson, Ketchikan, Alaska.
HAWAII: F. M. Branch, 305 Boston Building, Honolulu, Hawaii.
PANAMA: The Governor, or Secretary, Board of Health, Balboa Heights, Panama, C. Z.
PHILIPPINE ISLANDS: M. Jose V. Gloria, 686 Rizal, Manila, P. I.
PORTO RICO: Angel Sifro, P. O. Box 1276, San Juan, P. R.
SAMOA: E. R. Stitt, Surgeon-General, U. S. N., Washington, D. C.
VIRGIN ISLANDS: The Governor, Charlotte Amalie, St. Thomas, Virgin Islands.



PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., Suite 1206 Republic Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

Editor Practical Hints:

I have a patient, a young married woman 24 years old, who claims to be in perfect physical condition. She has complained for the past three weeks of the hypersensitiveness of practically all her teeth, no particular region or no particular teeth being more susceptible than others. Even a breath of fresh air—and it's not particularly cold here at present—starts them throbbing. The condition seems to be especially aggravating at night, frequently awakening her.

Litmus tests show almost normal. There is not the slightest pyorrhetic condition, no recession of the gums nor white lines at the gingival margin, no extensive dental work; in short, a noticeably normal mouth. Milk of magnesia, citro-carbonate and change of diet are being prescribed. Any suggestion will surely be appreciated.

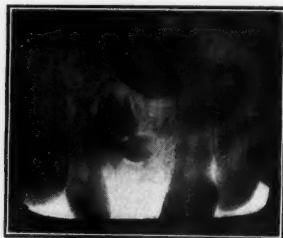
W. C. W.

ANSWER.—Irritation of the fifth nerve appeals to me as being the one plausible explanation of the hypersensitiveness of the teeth in this case. This might be caused by impacted third molars, supernumerary teeth pressing on some portion of the main nerve or change in the bony canal. The last occurs not infrequently in older people. Pulp nodules also cause this condition, but usually in older people. Hidden caries would have to be excluded. Pregnancy sometimes causes this condition. The condition of the sinuses should be looked into.

You are right in suspecting the diet, as an unbalanced diet might be the cause. If eliminating all of the above-mentioned possible causes does not result in a change, I should be at a loss as to a cause or treatment.—G. R. WARNER.

Editor Practical Hints:

I am sending films of a case that to me seems very unusual. The patient is now 14 years of age. The first picture was taken about two years ago by another dentist and the second picture was taken a few days ago.



The impacted tooth is a left central incisor. There seem to be three teeth, only partially developed, beneath the central.

The patient complains of an uncomfortable feeling in this region at times.

Any suggestions pertaining to the case would be appreciated very much.

V. J. W.

ANSWER.—Your radiograms show a follicular odontoma in the area where the left central incisor should be erupted. The radiograms show also that the unerupted left central incisor is malformed.

The treatment indicated is the removal of the odontoma, the maintenance of the normal space for the left central incisor and the forced eruption of the left central incisor. If the incisor proves to be unsightly after its eruption, it can have a porcelain jacket crown placed upon it as soon as the pulp has receded enough to make it safe.—G. R. WARNER.

Editor Practical Hints:

A patient, male, 35 years old, tall and slim, of nervous type and accustomed to drink liquor heavily, called at my office for extraction of the lower right first molar.

When I injected novocain of 2% solution, the whole upper right side of his face turned as white as a sheet. The line of demarcation was from the right side of his nose to the lower lid of his right eye, to his right ear and to the right angle of the jaw, and to the median

line of his chin. This condition lasted about fifteen minutes and then gradually disappeared.

The upper left side of the patient's face remained normal and the patient was only a little nervous, nothing unusual. As this is the first time I have seen anything like this happen, I should appreciate having you explain it to me.

K. S. K.

ANSWER.—I consulted our exodontist, and he says that your needle must have penetrated the facial artery, the distribution of which is to the area you describe as having blanched. The blanching was of course due to the adrenalin content of the novocain solution.—V. C. SMEDLEY.

Editor Practical Hints:

I should appreciate being helped in the following technic or being corrected in it. I cast the occlusal surfaces to the bands of hollow metal crowns. I proceed in the following way:

After properly festooning the band and contouring it, I cut it down to the proper height for clearance (to the height of the prepared stump). I have the patient bite into the inlay wax. Upon removal from the mouth I carve the occlusal surface, making sure not to add any additional wax. I also scrape off any high spots and even remove some of the wax from the inside of the crown. I then cast, using the double investment. I use as little solder as possible to make sure of union between casting and band. Without exception, I find that I must grind down more of the tooth to have the band fit as well under the gum line as it did when I placed the wax in the mouth. As it is not always possible to grind down more of the stump, once clearance has been made, I find that I am often forced either to devitalize to make the crown go to place or to remake the crown.

Is it possible that the tooth moves toward the plane of occlusion in a few days to cause this change?

P. G. R.

ANSWER.—This is not an uncommon difficulty in casting occlusal surfaces. We cast not only the occlusal surfaces but the entire contour of the crown over a straight band fitted to the prepared root. We also have difficulty sometimes, but we are convinced that it is only when the wax has not been sufficiently compressed at the time of taking the bite.

I would suggest that you adopt the following procedure not only with crowns but with gold inlays as well:

After the patient has bitten through the wax and you have com-

pleted the occlusal carving, with the wax cold, dip a short cotton roll in hot water and hold it over a Bunsen burner until it begins to steam, then hold it in contact with the occlusal surface of the wax for a few moments, remove, and have the patient close and grind vigorously with the teeth in all possible positions. This will usually cut considerable off the wax as carved and give a more accurate bite than can be procured by just the one closure on a chunk of wax. I think it is also advisable in the case of crowns to scrape out any excess of wax from within the crown before casting.—V. C. SMEDLEY.

Editor Practical Hints:

I gave block anesthesia for the upper left second molar and removed the tooth without any pain whatsoever. A few days later I saw the patient and the socket was healing finely. Three days later her jaw got stiff and permitted her to open her mouth only a half inch. I massaged in the upper region of the masseter and temporal muscles with chloroform liniment to help loosen up the stiffness, followed by a wooden wedge between the teeth. This helped wonderfully. I instructed her to do this four or five times a day.

Her mouth is open about three-quarters of the way and does not seem to open any farther. It is still sore and there is stiffness of the muscles. The socket has healed and has never given her the slightest trouble. If you can offer any suggestions to overcome this stiffness completely, I should certainly appreciate it.

T. T. M.

ANSWER.—I think that you are doing just about the right thing with this patient, and undoubtedly she will recover from this condition. More or less stiffness and ankylosis occasionally does occur following a nerve block and extraction. It may be due to an improperly sterilized needle or mucous membrane at the point of injection. Such infection may lodge in the muscle or the joint and cause stiffness.

—V. C. SMEDLEY.

Editor Practical Hints.

Under Practical Hints, H. A. H.* states that he has trouble with lower sockets after extraction. It is true that lower sockets give more trouble than upper ones. The following methods have practically eliminated trouble in this direction:

Extract abscessed lowers with gas, which permits the socket to

* In *The Dental Digest* for October, 1926, page 717.

clot quickly. When a considerable amount of anesthetic solution is injected, the clotting is retarded and by the time it subsequently bleeds food has gotten into the socket, and that usually causes the so-called dry socket. Another cause is no doubt the flushing out of the socket that many dentists adhere to, and also the packing. My plan is never to wash out the socket if the tooth is removed unbroken, and also not to pack the socket. Some should no doubt be packed, but the percentage of success will be much greater by not packing. What caused me to change in this connection was the fact that in major operations the wound is not doused with water as in the methods used by many dentists after extractions.

I used to pack many sockets with iodoform gauze, but since I stopped using it, it is very seldom that I have trouble with their not healing quickly.

After extracting abscessed teeth I usually give the patient a saline laxative.

G. E. Cox,
Wilmington, Del.

Editor Practical Hints:

A lady about 30 years of age came to my office for treatment for quite a bad case of pyorrhea. I have the case cleared up, but the four lower anteriors refuse to tighten. The bite of the lower anteriors overlaps the upper centrals and left lateral. Am I right in assuming that this is the cause? I suggested removing the upper and lower anteriors and substituting bridgework. What do you say?

A. V.

ANSWER.—The lower incisors ordinarily respond better to periodontoclusal treatment, for a given amount of destruction of the periodontium, than any other teeth in the mouth. This is at least partly due to stress being applied to the convexity of the arch, thus giving the teeth the benefit of lateral support. In your case this condition is reversed—the stress is applied to the concavity of the arch and the teeth are pressed apart in mastication rather than together.

Without seeing x-rays and models of the case one could not give advice as to the proper way to handle it. It might be possible to bridge the lower incisors only, but with the cross bite which you describe it probably would be necessary to remove both uppers and lowers to establish a normal occlusal relationship.—G. R. WARNER.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

Kindly send me your best remedy for removing the water stains from the mahogany base of a unit. I have used furniture polish and also wax and neither has made much improvement.

M. P., Canada.

ANSWER—I infer from your question that the water that caused the staining on the base of the unit in your office contained a substance, such as ammonia or soap, that marred the mahogany finish in such way that nothing save refinishing will restore it. The various dental equipment manufacturing companies and sales companies have special polishes for use on their dental equipment and furniture. I suggest that you write to the concern by whom the unit in your office was manufactured or sold and place your problem before them.

Dear Miss Pierce:

Kindly explain the burs used for different cavities and for the different teeth. I have been watching the doctor, but it takes so long to learn in that way. I think that if you will explain the various uses, I shall learn faster. I have been reading your *Questionnaire* and have found many helpful suggestions in it.

C. F., Ill.

ANSWER—In order to understand the use of burs properly, it is first necessary to know the types of burs used, which are as follows: round burs, inverted cones, pear-shaped burs, and fissure burs. These come in various sizes, and each type is also cross-cut; that is, their cutting edges have very fine teeth, which increase their cutting efficiency.

Round burs are generally used to clean out and enlarge cavities, the size used depending on the size of the cavity.

Inverted cones are generally used in finishing the cavity, preparatory to inserting the filling. Likewise, the size used depends on the size of the cavity.

Pear-shaped burs are used for excavating and cleaning out cavities.

Fissure burs are used to cut through the fissures of teeth and open up the long and narrow fissure cavities.

The *cross-cut* types are generally used to cut down enamel.

In addition to the burs mentioned, there is a type called *plug-finishing*, which comes in various forms—round, inverted-cone, wheel, and barrel. These burs with exceedingly fine cutting edges are used in the trimming down and grooving of malleted gold fillings and gold inlays.

As each dentist has his own peculiarities in the technic of operative procedure, there can be no arbitrary rules prescribed for the use of burs. The assistant must carefully observe the type of bur that her employer prefers to use for the particular work at hand and should familiarize herself with their names and numbers so that she can hand him any type that he may ask for.

Besides the burs, it is well to study the various types of drills, root-facers, root-reamers, broaches, etc. The drills are used principally for the opening up and cleaning out of root canals. There are straight and right-angled drills, used on the engine, and still others called *hand nerve-canal drills*, used by hand. The root-facers and reamers are used in the preparation of roots for porcelain crowns (pivot teeth) and gold crowns. The broaches are used in root-canal work.

If you will write to the manufacturers of dental instruments and supplies and secure their illustrated catalogues, you can compare the various types of burs, instruments, etc., used in dental offices with those used by your employer and in this way quickly learn their various names as well as their forms.

We gratefully acknowledge the following method for the removal of iodine stains sent to us by C. F., of Illinois:

“Mix about two tablespoonfuls of laundry starch with a pint of cold water. Soak the stained uniform or other material in it over night; if the iodine has been allowed to dry, it will take longer, probably two

days and one night. Do not use a tin or porcelain pan; to avoid rust spots, a porcelain or china dish should be used."

Dear Miss Pierce:

Please tell me what dental plaster is made from. I like the *Questionnaire* very much and can hardly wait for *THE DENTAL DIGEST* to come to the office each month to see what I can learn from the questions and answers.

E. C., Texas.

ANSWER—Dental plaster is made from gypsum rock, and chemically pure gypsum is called *calcium sulphate*. In the process of manufacturing dental plaster the gypsum rock is crushed to fragments that will pass through a sieve with holes about three inches in diameter. These fragments are again crushed to about one-third their size, then are pulverized to the consistency of flour. This pulverized gypsum is then calcined and by this process the water of crystallization is driven off. When water is mixed with plaster for the pouring of casts, the reverse action takes place, and when it sets, it becomes gypsum rock again and liberates heat. This is the reason why a plaster cast becomes warm while setting.

Educational and Efficiency Society

FOR

DENTAL ASSISTANTS, FIRST DISTRICT, NEW YORK, INC.

The month of May marks the close of another year in the life of the Educational and Efficiency Society for Dental Assistants, New York. A brief review of the past year's work brings out several points of merit in the activities of its members.

Clinics on sterilization, chair assistance, secretarial assistance, instrument-sharpening and other phases of dental assisting have been given before the King's County Dental Society and the Allied Dental Council, and a playlet on dental office procedure and a clinic on good office-management have been presented before the Midwinter Meeting of the First District Dental Society, New York.

Classes have been conducted evenings under the direction of prominent dentists, free of charge to members, and have included such subjects as x-ray assistance, sterilization, dental office bookkeeping and accounting, telephone courtesy, practical psychology, laboratory assistance, first aid.

The programs at the regular meetings have included lectures by

well-known members of the dental profession and addresses by women prominent in business and professional life, an arrangement which has offered not only knowledge along dental lines but news of the activities of women in other spheres of endeavor.

The Library now contains over two hundred articles of interest and value to the assistant which are always available. There is also a Scrapbook, which contains items about the history of dentistry and dental equipment, suggestions for efficiency, etc.

Through the Clinic Club the Society will present a series of clinics before the Fifty-ninth Annual Meeting of the Dental Society of the State of New York at Buffalo, May 19-20, 1927. On May 19 (morning), there will be a meeting of the dental assistants' societies throughout the State, when prominent members of the dental profession and members of the societies will present papers. On May 20, a dental assistants' luncheon will be held, for which an interesting program has been arranged.

The regular meetings of the Society are held on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd St., New York, N. Y. A cordial invitation to attend is extended to the members of the dental profession and to their assistants.

At the regular meeting of the Clinic Club on March 21, 1927, at the office of Dr. W. B. Dunning, 140 East 80th St., New York, a very interesting lecture and an instructive clinic on the preparation and use of cements were presented.

The Annual Meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, Inc., will take place at the Academy of Medicine, 2 East 103rd St., New York, on Tuesday, May 10, 1927, at 7:30 p. m. Election of officers for the ensuing year will be in order. There will be also reports of the year's work by the outgoing officers and chairmen of committees. Since this is strictly a business meeting, it will be open to members only.

Montreal Dental Assistants Association

The Dental Assistants Association of Montreal, Canada, held its monthly clinic on March 5, 1927, in the Medical Building of McGill University, Montreal.

The speaker of the evening was F. G. Henry, Professor of Materia Medica and Pathology of the Dental Faculty of McGill. His subject

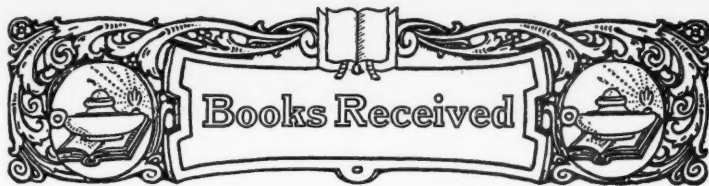
was a very interesting one for dental assistants, viz., *Drugs, Their Use in Dentistry*. He told of their actions on the tissues, and also their general and physiological action, and gave formulas for mouth washes, acid and alkaline, tooth powders and tooth pastes.

The meeting was well attended and the members feel that their efforts are appreciated by the profession in general.

The progress of the Association so far is very satisfactory, and it is anticipated that eventually the dental assistants all over the Dominion will meet in this work for their mutual benefit.

The regular monthly meeting of the Montreal Dental Assistants Association took place at the Université de Montreal on March 21, 1927. J. A. Pinault, Professor of Prosthetic Dentistry of the Université de Montreal, spoke on the *Help of a Dental Assistant in Prosthetics*.





A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Dental Materia Medica and Therapeutics, With Special Reference to the Rational Application of Remedial Measures to Dental Diseases, by Hermann Prinz, A.M., D.D.S., M.D., Sc.D., Professor of Materia Medica and Therapeutics, The Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania; Member of the U. S. Pharmacopeia and Formulary Committee, American Dental Association.

This is a new edition, the sixth, of a book that has been an authority in its field for a great many years. The author says: "A number of important drugs which have proved their worthiness have been added, while a few which have become obsolete are discarded. In general, most of the chapters have received extensive alterations."

Dentists in general are all too ignorant of materia medica and therapeutics and too prone to use proprietary drugs and empiric methods. A careful study of this branch of medicine would be of the greatest value, and no better book could be found than this. It can be unreservedly recommended.

632 pp., with 146 illustrations, appendix, index of drugs, and general index. St. Louis, Mo.: The C. V. Mosby Company, 1926.—A. M. J.



A Textbook of Exodontia (Exodontia, Oral Surgery and Anesthesia), by Leo Winter, D.D.S., Professor of Oral Surgery, New York University College of Dentistry; Oral Surgeon, Flower Hospital; Lecturer in Oral Surgery, New York Homeopathic Medical School; Oral Surgeon, Dental Clinic Association for Improving Condition of Poor; Visiting Dental Surgeon, New York Foundling Hospital; Visiting Dental Surgeon, Harlem Hospital, Bellevue and Allied Hospitals, New York, N. Y.

This book does not deal exclusively with exodontia. Nearly one half of the text is taken up with a comprehensive treatment of local anesthesia, its general aspects and the technic of injection.

The part devoted to extraction is not so explicit as it might have been made, but the illustrations are numerous and of excellent quality,

so that the methods of the author are clearly indicated. In addition, there are chapters on the control of bleeding, dislocation and fractures of the jaw, and cysts of the jaw.

This treatise will be of special value to the student and the general practitioner who does a certain amount of extraction.

364 pp., with 329 illustrations and index. St. Louis, Mo.: The C. V. Mosby Company, 1927.—A. M. J.





No Literature can have a long continuance if not diversified with humor—ADDISON

We have learned that the reason so few men go to church is they don't care particularly what other men wear.

LUCKY FOR THE SPOOKS!

When as to spiritistic shows
The good Sir Arthur Conan goes,
The fact is clear and hard to hide,
He leaves old Sherlock Holmes outside.

A psychologist has discovered that a kiss shortens life by three minutes. Well, isn't it a grand and glorious thing to die happy!

Bite off more than you can chew,
Then chew it.
Plan for more than you can do,
And do it.
Hitch your wagon to a star,
Keep your seat, and there you are.

A STRAIGHT TIP

Taking his Bible with him, the minister started out on one of his visiting days. His first stop was at the house of a new family who had just moved into his parish. He was met on the porch by little Dolly, four years old, who, seeing the book under his arm, said: "I'm tippin' ya off, mister, to watch out for my ol' man, cuz he's one rough guy on youse book agents!"

THE TRAIN JOURNEY

(Passenger)—Porter, fifty cents if you bring me another pitcher of ice water.

(Porter)—Sorry, sir, but if I takes any mo' ice, dat corpse in de baggage car ain't goin' to keep!

The doctors are giving us a lot of advice now-a-days about fruit as a means of aiding and preserving health, all of which seems quite proper, of course. But on the other hand, when we remember what an apple did to Adam, and what peaches did to a pompous specimen of mankind only recently, well, we must deal with the fruit problem with some caution.

When a free citizen wants to do anything, he can go right ahead without consulting anybody except his wife, the police, his boss, his life insurance company, his doctor, and his neighbors.

Bootleggers, we hear in drinking circles, are now picking up some extra money by selling their lists of customers to undertakers.

(Old Lady)—Now, then, what should a polite little boy say to a lady who has given him a penny for carrying her parcels?

(Boy)—I am too polite to say it, madam!

A schoolgirl was asked: "What did Henry VIII do to Anne Boleyn?"

The reply was surprising: "Please, teacher, he ironed on her."

The child repeated her statement. She was quite confident that Henry had caused Anne Boleyn to submit to this treatment. It fitted in with her idea of his character.

Chapter and verse were then demanded, and the child opened her history book and pointed triumphantly to the passage: "Henry pressed his suit on Anne Boleyn."

SAFETY FIRST

In this day of feminine bandits there's no better protection for man than a tame mouse carried in his pocket.

SPRING

Oh, yes, the spring's come back,
Buds greet the sky,
But when I think of all
The springs gone by
And all the springs to come,
It seems to me
We effervesce too much
With ecstasy.

Oh, yes, the winter's gone,
And so's the coal,
But still the bill rests in
A pigeonhole.
We need not purchase more,
That sure is nice,
But it's not long before
We must buy ice.

In running rivulets
The snowdrifts pass,
But very soon, my friend,
We must cut grass;
I somehow can't enthuse
When poets sing . . .
Through frost and sweat, life is
The same darn thing!

FUTURE EVENTS

The fifty-ninth annual session of the PENNSYLVANIA STATE DENTAL SOCIETY will be held in Pittsburgh, May 10-13, 1927.

The general practitioner will be given a veritable postgraduate course in every phase of general practice, while the specialist in any subject will feel that the Program Committee had him especially in mind when they chose the speaker to present his specialty in a general way.

There will be a golf tournament on Monday, May 9, 1927.

All members of the American Dental Association are cordially invited.

Program and full information may be obtained from

A. C. BARCLAY, *Secretary*,
914 Highland Building, Pittsburgh, Pa.

The Forty-seventh Annual Convention of the TEXAS STATE DENTAL SOCIETY will be held at Austin, May 10-13, 1927. Headquarters will be at the Austin Hotel.

A very attractive postgraduate course by expert clinicians has been provided as a special feature of the meeting.

J. G. FIFE, *Secretary*,
Medical Arts Building, Dallas, Texas.

THE CANADIAN DENTAL ASSOCIATION will hold a Diamond Jubilee Convention at the King Edward Hotel, Toronto, Ontario, May 16-19, 1927, on the occasion of the Sixtieth Anniversary of the Ontario Dental Association. A cordial welcome is extended to guests from the United States.

FRED J. CONBOY, *Secy.-Treas.*,
Ontario Dental Association,
Whitney Building, Toronto, Ontario.

The Seventh Annual Meeting of the DENTAL HYGIENISTS ASSOCIATION OF THE STATE OF NEW YORK will be held at the Hotel Statler, Buffalo, N. Y., May 18, 1927. A cordial invitation is extended to dentists and dental hygienists to attend the clinics and literary meetings.

MARY A. OWEN, *Secretary*,
28 Tremaine Avenue, Kenmore, Buffalo, N. Y.

The Annual Meeting of the DENTAL ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS of San Francisco, School of Dentistry, will be held at the College, May 23-24, 1927. Clinics will be presented on every phase of dental practice; among them will be a lecture and demonstration on *Inlays and Modern Crown and Bridgework* by George M. Hollenback of Los Angeles. A luncheon meeting will be held at the Hotel Whitcomb on Tuesday, May 24, at which William Ophuls, Dean of the School of Medicine, Stanford University, will speak on *Medico-Dental Relationship*.

FREDERICK T. WEST, *Chairman of Publicity Committee*,
2595 Mission Street, San Francisco, Cal.

On May 24, 1927, during the week of the MISSOURI STATE DENTAL MEETING in St. Louis, a general Homecoming is being arranged at the ST. LOUIS UNIVERSITY DENTAL SCHOOL, Grand and Caroline Avenues, for all the graduates of the ST. LOUIS COLLEGE OF DENTISTRY, MARION-SIMS DENTAL COLLEGE, and ST. LOUIS UNIVERSITY DENTAL SCHOOL. Among other things will be a banquet, to be given by the Dental School to the alumni. It is expected that hundreds of the old "Dents" will take advantage of this opportunity to visit the old school and renew old associations.

THE DENTAL SOCIETY OF WESTERN CANADA will meet in Edmonton, Alberta, May 25-27, 1927, at the MacDonald Hotel.

Among the clinicians will be Fred Molt of Chicago on *Oral Surgery, Mouth Preparation, Radiographic Interpretation*; Robert Gillis of Hammond, Ind., on *Full Denture Difficulties, Articulation, Regrinding, etc.*; Fred Conboy of the Ontario Health Department on *Ethics, Economics, Practice-Building, etc.*; and W. I. Ferrier, President of the Washington State Association, on *Indication For and Practical Demonstrations of Gold Foil Insertion*.

LESLIE MCINTYRE, *Chairman of Publicity*,
Edmonton, Alberta.

The fifty-first annual meeting of the VERMONT STATE DENTAL SOCIETY will be held at Burlington, May 25-27, 1927.

LLOYD C. ROBINSON, *Secretary*,
Morrisville, Vt.

THE BOARD OF DENTAL EXAMINERS OF CALIFORNIA will conduct examinations for a license to practise dental hygiene and a license to practise dentistry, in San Francisco, commencing May 28, 1927, and for the practise of dentistry, in Los Angeles, commencing June 25, 1927.

Complete credentials, together with the required fee of \$25.00, must be in the hands of the Secretary at least twenty days before the examinations. Personal checks are not accepted.

O. E. JACKSON, *Secretary*,
155 Kentucky St., Petaluma, Calif.

THE IOWA STATE BOARD OF DENTAL EXAMINERS will meet at the State University of Iowa College of Dentistry, Iowa City, Iowa, May 31-June 3, 1927, at 9:00 A. M., for the purpose of examining applicants for a license to

practise dentistry in Iowa. An examination for dental hygienists also will be given.

All papers and credentials must be filed with the State Department of Health at least fifteen days prior to date of examination.

For further information and application blanks, address the State Department of Health, Capitol Building, Des Moines, Iowa.

THE NEW HAMPSHIRE DENTAL SOCIETY will hold its Fiftieth Anniversary Meeting at the Pemigewasset House, Plymouth, N. H., June 8-10, 1927.

WILLIAM J. MOYLES, *Secretary*,
Manchester, N. H.

FORTY-SEVENTH ANNUAL MEETING OF THE PENNSYLVANIA DENTAL ALUMNI SOCIETY

Reserve June the tenth (10th) and eleventh (11th) for your Alma Mater.

Two most interesting, instructive, and enthusiastic Alumni days.

FRIDAY—JUNE 10th—DENTAL ALUMNI DAY

10:00 Alumni Society Meeting—Evans Institute

2:00 Clinics —Evans Institute

6:30 Annual Banquet, Dental Alumni Society—Benjamin Franklin Hotel,
9th and Chestnut Sts.

SATURDAY—JUNE 11th—GENERAL ALUMNI DAY

9:00-12:00 Visit University—New Field, New Buildings, Palestra, Laboratories, etc.

12:00- 1:30 Class Luncheons.

2:00 Assembly of Celebrating Classes—Dormitory Triangle.

2:30 Parade of Classes to Franklin Field.

3:00 Baseball Game—Harvard vs. Varsity.

ALL THE ALUMNI—REGARDLESS OF CLASS REUNIONS—ARE EARNESTLY URGED TO ATTEND THESE TWO—*THEIR OWN CELEBRATIONS*.

COMMUNICATE WITH THE COMMITTEEMAN OF YOUR CLASS AND JOIN IN THE MOST ENJOYABLE EVENTS OF YOUR UNIVERSITY.

'82—J. J. Edwards, 3707 Powelton Ave.

'87—R. H. D. Swing, Earle Building, 15th and Locust Sts.

'92—A. Herbert Grubb, Medical Arts Bldg., 16th and Walnut Sts.

'97—A. C. Eglin, 1728 Chestnut St.

'02—J. A. Stanton, 1629 Spruce St.

'07—J. C. Entriiken, Medical Arts Bldg., 16th and Walnut Sts.

'12—G. W. Oestreich, 1701 Chestnut St.

'17—J. E. Aiguier, Medical Arts Bldg., 16th and Walnut Sts.

'22—E. C. Kirk Swing, Earle Bldg., 15th and Locust Sts.

HEADQUARTERS AT THE BENJAMIN FRANKLIN HOTEL—9TH AND CHESTNUT STS.

THE INDIANA STATE BOARD OF DENTAL EXAMINERS will hold its next examinations at the State House, Indianapolis, beginning Monday morning, June 13, 1927.

Applications properly executed must be in the hands of the Secretary-Treasurer at least one week before the examinations.

For further information and applications address

J. M. HALE, *Secy.-Treas.*,
Mt. Vernon, Indiana.

THE NORTHEASTERN MASSACHUSETTS DENTAL SOCIETY will hold its annual meeting at the New Ocean House, Swampscott, Mass., June 14-16, 1927.

THE MASSACHUSETTS BOARD OF DENTAL EXAMINERS will hold an examination for registration for both dentists and oral hygienists in Boston, June 14-17, 1927. Applications must be filed with the Secretary at least ten days before date of examination. For further information, application blanks, etc., address

W. HENRY GRANT, *Secretary*,
Room 146, State House, Boston, Mass.

The next meeting of the DELAWARE BOARD OF DENTAL EXAMINERS will be held in the Municipal Bldg., Tenth and King Sts., Wilmington, Del., June 15-16, 1927, from 9 a. m. to 5 p. m. For further information, address

W. S. P. COOMBS, *Secretary*,
Middletown, Del.

The Fifty-ninth Annual Meeting of the GEORGIA STATE DENTAL SOCIETY will be held June 15-17, 1927, at Albany, Georgia.

G. A. MITCHELL, *Secretary*,
Candler Building, Atlanta, Ga.

The Fifty-second Annual Meeting of the MISSISSIPPI STATE DENTAL ASSOCIATION will be held in Gulfport, Miss., June 16-18, 1927.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the College of Dentistry, University of Minnesota, Minneapolis, Minn., June 16-26, 1927. Applications for examination must be in the hands of the Secretary by June 1st.

F. E. COBB, *Secretary*,
601 Donaldson Bldg., Minneapolis, Minn.

The meeting of the WYOMING STATE DENTAL ASSOCIATION will be held June 20-21, 1927, at Thermopolis, Wyoming.

E. C. ANDREW, *Secretary*,
Cheyenne, Wyoming.

THE TENNESSEE BOARD OF DENTAL EXAMINERS will meet at 9 a. m., June 20, 1927, at the Dental Department, University of Tennessee, Memphis, Tenn., for the purpose of examining all applicants who present credentials acceptable to the Board of Dental Examiners. Hygienists also will be examined.

Credentials should be brought to the Board meeting for examination by the entire Board. Applications should be in the hands of the Secretary five days before the meeting.

For applications and clinical requirements, address

F. W. MEACHAM, *Secy.-Treas.*,
911 Hamilton National Bank Building,
Chattanooga, Tennessee.

The Thirty-fourth Annual Meeting of the OREGON STATE DENTAL ASSOCIATION will be held in Portland, Oregon, June 20-23, 1927. Dr. Percy R. Howe of Boston and Dr. T. M. Maves of Cleveland will be guests of the Association.

THE OKLAHOMA STATE BOARD OF DENTAL EXAMINERS will hold its next regular meeting for the purpose of examining applicants, June 20-23, 1927, at the State Capitol Building, Oklahoma City, Okla.

CHAS. A. HESS, *Secy.-Treas.*
Idabel, Okla.

The annual meeting of the MAINE DENTAL SOCIETY will be held June 21-23, 1927, at The Belgrade, Belgrade Lakes, Maine.

W. F. FOGG, *Secretary*,
Waterville, Maine.

The next regular examination of the PENNSYLVANIA STATE DENTAL COUNCIL AND EXAMINING BOARD will be held in Philadelphia and Pittsburgh, June 22-25, 1927.

The theoretical examination will be held in the hall at 808 Locust Street, Philadelphia, and at the University of Pittsburgh, Pittsburgh.

The practical examination will be held at the Evans Dental Institute, Philadelphia, and the University of Pittsburgh, Pittsburgh, on Saturday, June 25, at 8:30 A. M.

An examination will be held in the fundamental branches for students who complete their second year in June, on June 22-23.

An examination will be held for dental hygienists also at the same places on June 23-25.

Application papers may be secured from the Department of Public Instruction, Harrisburg, Pa. For further information address the Secretary,

ALEXANDER H. REYNOLDS,
4630 Chester Avenue, Philadelphia, Pa.

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford, Connecticut, June 23-25, 1927, to examine applicants for license to practise den-

tistry and dental hygiene and to transact any other business proper to come before it.

Attention of dental hygienists is called to Chapter 2907, Section II, Amended, of the Connecticut Dental Laws, reading as follows:

"From July 1, 1926, every dental hygienist applying for a license shall present a certificate from the state board of education that she has completed a four years' course at an approved high school or has an equivalent academic education.

"No license shall be issued to any dental hygienist unless she shall present a diploma or other certificate of graduation from some reputable institution. The dental commission is authorized to determine the institutions which shall be considered 'reputable institutions' for the purpose of Chapter 153 of the general statutes."

For further information apply to

A. B. HOLMES, *Recorder*,
43 Central Avenue, Waterbury, Conn.

The next regular meeting of the SOUTH DAKOTA BOARD OF DENTAL EXAMINERS will be held in Sioux Falls, S. D., beginning on Monday, June 27, 1927.

G. G. KIMBALL, *Secretary*,
Mitchell, S. D.

The next meeting of the OHIO STATE BOARD OF DENTAL EXAMINERS will be held in Columbus, June 27-July 2, 1927, for the purpose of granting licenses to practise dentistry and oral hygiene in the State of Ohio. The oral hygiene examination will be given on June 28. For further information and application forms, write to

RAY R. SMITH, *Secretary*,
327 East State Street, Columbus, Ohio.

The next meeting of the AMERICAN DENTAL HYGIENISTS' ASSOCIATION will be held in conjunction with the meeting of the American Dental Association in Detroit, Mich., October 24-28, 1927.

Dental Hygienists, make your plans now to attend this meeting!

ETHEL F. RICE, *Secretary*,
721 North University Ave., Ann Arbor, Mich.



STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, OF AUGUST 24, 1912

OF THE DENTAL DIGEST
at New York, N. Y.

State of New York, } ss.:
County of New York, }

Published monthly
for April 1, 1927.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Seeley Vander Veer, who, having been duly sworn according to law, deposes and says that he is the Assistant Secretary of the Dentists' Supply Co. of New York, Publishers of THE DENTAL DIGEST, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF	POST OFFICE ADDRESS
<i>Publisher, THE DENTISTS' SUPPLY CO. OF NEW YORK</i>	220 West 42nd St., New York, N. Y.
<i>Editor, GEORGE WOOD CLAPP</i>	New Rochelle, N. Y.
<i>Managing Editor, GEORGE WOOD CLAPP</i>	New Rochelle, N. Y.
<i>Business Manager, L. W. DUNHAM</i>	New Rochelle, N. Y.
2. That the owners are:	
THE DENTISTS' SUPPLY CO. OF NEW YORK	220 West 42nd St., New York, N. Y.
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THE AMALGAMATED DENTAL COMPANY, LTD., is a corporation organized under the laws of England, with an authorized capital stock of £2,850,000, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY OF NEW YORK,

SEELEY VANDER VEER, *Asst. Sec'y.*

Sworn to and subscribed before me this 28th day of March, 1927.

[SEAL]

EMELIE S. SCHOPP

Notary Public, Westchester County

Certificate filed in N. Y. County

Clerk's No. 565; Register's No. 7523— My commission expires March 30, 1927.